

ADDITIONAL NOTES ON THE GENUS VITEX. XVII

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VITEX Tourn.

Additional bibliography: Mold., Phytologia 45: 478--495 & 512. 1980.

The *White & Alveston 748*, distributed as *Vitex* sp., actually is a species of *Salvia* in the *Lamiaceae*.

VITEX KUKOVII Mold.

Additional bibliography: Mold., Phytologia 15: 251. 1967; Mold., Fifth Summ. 1: 179 (1971) and 2: 926. 1971.

Recent collectors refer to this species as a tree, 5 m. tall, and have found it growing in varzea forest, flowering in June. The corollas on *Prance & al. 13446* are said to have been "white, lower lobe blue".

Additional citations: BRAZIL: Amazonas: *Prance, Maas, Atchley, Steward, Woolcott, Coêlho, Monteiro, Pinheiro, & Ramos 13446* (N, Z).

VITEX KUYLENII Standl.

Additional bibliography: Pittier, Contrib. U. S. Nat. Herb. 20: 484. 1972; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1076 (1932) and 56 (2): 286. 1937; Metcalfe & Chalk, Anat. Dicot. 2: 1037--1038. 1950; Kribs, Comm. For. Woods, ed. 2, 161--162 (1959) and ed. 3, 161--162, fig. 474. 1968; Mold., Phytologia 17: 8. 1968; Mold., Biol. Abstr. 50: 418 & 942. 1969; Gibson, Fieldiana Bot. 24 (9): 234 & 236. 1970; Hocking, Excerpt. Bot. A.15: 421. 1970; Mold., Fifth Summ. 1: 77, 81, 82, & 84 (1971) and 2: 720, 721, 728, & 926. 1971; Mold., Phytologia 23: 415 & 416. 1972; Molina R., Ceiba 19: 96. 1975; Mold., Phytologia 44: 409 (1979) and 45: 491. 1980.

Illustrations: Kribs, Comm. For. Woods, ed. 2, fig. 474. 1968.

Recent collectors describe this species as a large tree, 24--80 feet tall, the trunk to 35 inches in diameter at breast height, the wood hard, close-grained, and the immature fruit green. They have encountered it in forests, high forests, and cleared swampy forests, on lakeshores and creekbanks, in corozal, and on broken cohune ridges, from sealevel to 200 feet altitude, in flower in February, April, June, and August, and in fruit in May, August, and October. Schipp refers to it as "rare". The corollas are described as "blue" on *Contreras 7597*, *Dwyer 12842*, & *Gentle 5551*, "light violet-blue" on *Jones & al. 3031*, "whitish-blue" on *Gentle 6769*, and "light-blue and white" on *Schipp 994*.

Vernacular names recorded for the species include "blue blossom", "flor azul", and "yaxnic". Kribs (1968) gives a detailed description of the wood anatomy, presumably of this species, although he refers also to *V. cooperi* Standl. and lists vernacular

names and geographic distributions which cannot possibly apply to *V. kuylenii*.

Material of *V. kuylenii* has been misidentified and distributed in some herbaria as *V. hemsleyi* Briq.

Additional citations: MEXICO: Guerrero: Webster, Rowell, & Barkley 17M858 (Au). GUATEMALA: Izabal: Contreras 7597 (Ld, Ld, W--2558709), 9886 (Ld, Ld), 10714 (Ld, Ld); Harmon 2481 (W--2705604); Jones & Facey 3500 (Ld, Mi, N); Jones, Proctor, & Facey 3031 (Ld, Mi, N). BELIZE: Dwyer 12842 (Au, W--2787797); Gentle 4610 (Au--188727), 5551 (Ld, Ld, N), 6769 (Ld), 7774 (Au--239604, Ld); Peck 920 (N); Schipp 994 (Ba).

VITEX KWANGSIENSIS P'ei

Additional bibliography: Mold., Phytologia 15: 251. 1967; Mold., Fifth Summ. 1: 290 (1971) and 2: 926. 1971.

VITEX KWEICHOWENSIS P'ei

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 59 (2): 417 (1939) and 60 (2): 576. 1941; Wangerin & Krause, Justs Bot. Jahresber. 60 (1): 753 & 825. 1941; Mold., Phytologia 17: 8. 1968; Mold., Fifth Summ. 1: 290 (1971) and 2: 926. 1971.

VITEX LAMIANA Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; Dale & Greenway, Kenya Trees Shrubs 592 & 597. 1961; Mold., Phytologia 15: 252. 1967; Gillett, Numb. Check-list Trees Kenya 47. 1970; Mold., Fifth Summ. 1: 238 & 242 (1971) and 2: 926. 1971; Mold., Phytologia 44: 389. 1979.

Dale & Greenway (1961) comment that this taxon is "Doubtfully distinct from *V. strickeri* Vatke & Hildebrandt", but keys out the two taxa as follows: Leaflets glandular, puberulous on the veins beneath -- *V. lamiana*. Leaflets usually scabrid and more or less rugose above and densely to sparsely pubescent beneath -- *V. strickeri*. For the former he cites Fries 1988, Hildebrandt 2524, and Scott-Elliot 6417 from Kenya, describing the plant as a "Shrub with leaves of 3 ovate leaflets 1--2 1/2 in. long and 3/4 -- 1 1/2 in. wide, apex acuminate, margins entire or crenate-serrate, blade glabrous except for the nerves beneath. Flowers in terminal spike-like panicles; upper lip of corolla entire or slightly lobed. Fruit glossy-brown."

VITEX LANIGERA Schau.

Additional synonymy: *Vitex lanuginosus* Mohl, Beitr. Anat. Physiol. Gew. 85. 1834. *Vitex lanuginosa* Bojer, in herb. *Vitex lanuginosa* H. & B., in herb.

Additional bibliography: Mohl, Beitr. Anat. Physiol. Gew. 85. 1834; Mohl, Ann. Sci. Nat., ser. 2, 3: 319. 1835; Buek, Gen. Spec. Syn. Candoll. 3: 502. 1858; E. D. Merr., Trans. Am. Phil. Soc., ser. 2, 24 (2): 334 & 444. 1935; Mold., Phytologia 15: 252 (1967) and 17: 8. 1968; Mold., Résumé Suppl. 16: 13 & 29. 1968; Mold., Fifth Summ. 1: 263 & 426 (1971) and 2: 720, 926, & 970. 1971.

The Missouri Botanical Garden photograph A.862, cited below, is of an isotype of Bojer's *Chrysomallum lanuginosum*, re-determined at the British Museum as *Vitex lanigera* "Schaner". It seems most probable that the *V. lanuginosa* Mohr, referred to by me in *Phytologia* 17: 8 (1968), also belongs here in the synonymy of *V. lanigera*. The "H. & B." in the synonymy (above) doubtless refers to Hilsenberg & Bojer [not Humboldt & Bonpland!].

Additional citations: MADAGASCAR: Bojer s.n. (Mu--647--isotype); Hilsenberg & Bojer s.n. [Mo. Bot. Gard. photo A.862] (N--photo, W--photo).

VITEX LASIANTHA H. Hallier, Meded. Rijks Herb. Leid. 37: 50--51. 1918.

Additional & emended bibliography: H. Hallier, Meded. Rijks Herb. Leid. 37: 50--51. 1918; H. J. Lam in Lam & Bakhu., Bull. Jard. Bot. Buitenz., ser. 3, 3: 49. 1921; Mold., *Phytologia* 15: 252. 1967; Mold., Fifth Summ. 1: 338 (1971) and 2: 926. 1971.

VITEX LASTELLEI Mold.

Additional bibliography: Mold., *Phytologia* 15: 252. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 926. 1971.

VITEX LEANDRII Mold.

Additional bibliography: Mold., *Phytologia* 15: 252. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 926. 1971.

VITEX LEBRUNI Mold.

Additional bibliography: Mold., *Phytologia* 15: 252. 1967; Mold., Fifth Summ. 1: 232 (1971) and 2: 926. 1971.

VITEX LEHMBACHII Gürke

Additional bibliography: Mold., *Phytologia* 15: 252--253. 1967; Mold., Fifth Summ. 1: 224 (1971) and 2: 926. 1971.

The Schlieben 1681 & 3255, distributed as *V. lehmbachii*, actually are *V. lokundjensis* Pieper.

Additional citations: CAMEROONS: *Lehmbach* 11 (Mu--isotype, Z--isotype).

VITEX LEUCOXYLON L. f.

Additional & emended synonymy: *Wallrothia leucoxylon* (L. f.) Roth, Nov. Pl. Sp., imp. 1, 319--320. 1821. *Vitex leucoxylon* L. apud Sweet, Hort. Brit., ed. 1, 1: 323, in syn. sphalm. 1826; Ghosh, Indian Forest. 94: 778. 1968 [not *V. leucoxylon* Blanco, 1895, nor Naves, 1918, nor Roth, 1956, nor Roxb., 1814, nor Span., 1856, nor Schau., 1893]. *Vitex tomentosa* Wall., Numer. List 86, no. 1747H. 1831 [not *V. tomentosa* Pav., 1940, nor Rich., 1941, nor Sessé & Moc., 1940]. *Wallrothia leucoxylon* Roth apud D. Dietr., Syn. Pl. 3: 610. 1843. *Vitex* n. 18 Hook. f. & Thoms. ex C. B. Clarke in Hook. f., Fl. Brit. India 4: 587, in syn. 1885; Mold., *Phytologia* 23: 438, in syn. 1972. *Wallrothia tomentosa* Wight ex C. B. Clarke in Hook. f., Fl. Brit. India 4: 588, in syn.

1885. *Vitex tomentosa* Wight ex Mold., *Phytologia* 5: 436, in syn.
 1956. *Vitex leucopyrus* Sohmer ex Mold., *Phytologia* 34: 280, in
 syn. 1976. *Vitex leucozylon* L. f. ex Mold., *Phytologia* 34: 280,
 in syn. 1976. *Vitex locopyrus* Sohmer, in herb.

Additional & emended bibliography: L. f., *Suppl. Pl.*, imp. 1, 293. 1781; Lam., *Encycl. Méth. Bot.* 2: 614. 1788; Raeusch., *Nom. Bot.*, ed. 3, 182. 1797; Roxb., *Hort. Beng.* 46. 1814; Roth, *Nov. Pl. Sp.*, imp. 1, 319--320. 1821; Moon, *Cat. Indig. Exot. Pl. Ceyl.* 1: 46. 1824; Blume, *Bijdr. Fl. Ned. Ind.* 14: 813. 1826; Sweet, *Hort. Brit.*, ed. 1, 1: 323 (1826) and ed. 2, 417. 1830; Loud., *Hort. Brit.*, ed. 1, 246. 1830; Wall., *Numer. List* 86, nos. 1747H & 1749D--F. 1831; Loud., *Hort. Brit.*, ed. 2, 246. 1832; Decne., *Nouv. Ann. Mus. Hist. Nat. Paris* 3: 401. 1834; G. Don in Loud., *Hort. Brit.*, ed. 3, 246. 1839; J. Grah., *Pl. Bomb.* 156. 1839; G. Don in Sweet, *Hort. Brit.*, ed. 3, 551. 1839; Thwaites, *Enum. Pl. Zeyl.* 2: 244. 1839; D. Dietr., *Syn. Pl.* 3: 610. 1843; Voigt, *Hort. Suburb. Calc.* 469. 1845; Wight, *Icon. Pl. Ind. Or.* 4 (3): 11--12, pl. 1467. 1849; Buek, *Gen. Spec. Syn. Candol.* 3: 502. 1858; Dalz. & Gibbs., *Bomb. Fl.* 201. 1861; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, imp. 1, 244. 1861; Kurz, *Rep. Veg. Andam. App. A*: 45 & 71. 1870; Beddome, *Forest. Man. in Fl. Sylvat. S. India* 2: clxxi. 1874; Kurz, *Forest Fl. Brit. Burma* 2: 269, 273, & 612. 1877; Gamble, *Man. Indian Timb.*, ed. 1, 298 & 522. 1881; C. B. Clarke in Hook. f., *Fl. Brit. India* 4: 587--588. 1885; Trimen, *Journ. Ceyl. Br. Roy. Asiat. Soc.* 9: [Syst. Cat. Flow. Pl. Ceyl.] 69. 1885; K. Schum. & Hollr., *Fl. Kais. Wilhelmsl.* 121. 1889; Nairne, *Flow. Pl. West. India* 246--247. 1894; Trimen, *Handb. Fl. Ceyl.* 3: 358--359. 1895; Woodr., *Journ. Bomb. Nat. Hist. Soc.* 5: 359. 1899; Talbot, *Trees Bomb.*, ed. 2, 271. 1902; Prain, *Bengal Pl.*, imp. 1, 2: 832 & 833. 1903; Cooke, *Fl. Presid. Bombay*, ed. 1, 3: 428 & 430. 1905; Brandis, *Indian Trees*, imp. 1, 504. 1906; D. H. Scott in Solered. [transl. Boodle & Fritsch], *Syst. Anat. Dicot.* 1: 634. 1908; J. C. & M. Willis, *Rev. Cat. Flow. Pl. Ceyl. [Perad. Man. Bot. 2:]* 69. 1911; H. Hallier, *Meded. Rijks Herb. Leid.* 37: 44 & 46. 1918; Kirtikar & Basu, *Indian Med. Pl.*, ed. 1, 1944. 1918; E. D. Merr., *Sp. Blanc.* 332--333. 1918; H. J. Lam in Lam & Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 50. 1921; Troup, *Silvicult. Indian Trees* 2: 776 & 777. 1921; Haines, *Bot. Bihar Orissa*, ed. 1, 4: 711--713. 1922; Janssonius, *Mikrogr. Holz.* 812. 1926; Alston in Trimen, *Handb. Fl. Ceyl.* 6: *Suppl.* 232. 1931; E. D. Merr., *Trans. Am. Phil. Soc.*, ser. 2, 24 (2): 17, 334, & 444. 1935; L. f., *Suppl. Pl.*, imp. 2, 293. 1936; Kadambi, *Indian Forest.* 76: 18--30, 69--82, & 121--132. 1950; Cooke, *Fl. Presid. Bombay*, ed. 2, imp. 1, 2: 508 & 510. 1958; Abeywickrama, *Ceyl. Journ. Sci. Biol.* 2: 217. 1959; Worthington, *Ceyl. Trees* 346. 1959; Puri, *Indian For. Ecol.* 152. 1960; Haines, *Bot. Bihar Orissa*, ed. 2, 2: 745 & 747. 1961; Hansford, *Sydworia*, ser. 2, *Beih.* 2: 695. 1961; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, imp. 2, 244. 1964; Cooke, *Fl. Presid. Bombay*, ed. 2, imp. 2, 508 & 510. 1967; J. L. Ellis, *Bull. Bot. Surv. India* 10: 157. 1968; Ghosh, *Indian Forest.* 94: 778. 1968; Gunawardena, *Gen. Sp. Pl. Zeyl.* 148.

1968; Mold., *Phytologia* 17: 8--9, 12, 13, & 21. 1968; Mold., *Re-sume Suppl.* 16: 10 & 29. 1968; R. I. Patel, *Fl. Melghat* 265--267. 1968; M. A. Rau, *Bull. Bot. Surv. India* 10, *Suppl.* 2: 63. 1969; Agarwal, *Wood-yield. Pl. India* 67. 1970; Brandis, *Indian Trees*, imp. 2, 504. 1971; Fonseka & Vinasithamby, *Prov. List Local Names Flow. Pl. Ceyl.* 35, 63, & 65. 1971; Mold., *Fifth Summ.* 1: 269, 279, 281, 284, 306, 328, & 374 (1971) and 2: 720, 721, 727, 729, 735, & 926. 1971; V. Singh, *Journ. Bomb. Nat. Hist. Soc.* 68: 343. 1971; Anon., *Biol. Abstr.* 53 (10): B.A.S.I.C. S.266. 1972; Ingle, *Botanique Nagpur* 3: 7--12. 1972; Mold., *Biol. Abstr.* 53: 5252. 1972; Mold., *Phytologia* 23: 438. 1972; Anon., *Biol. Abstr.* 55 (8): B.A.S.I.C. S.281. 1973; Hegnauer, *Chemotax. Pfl.* 6 [Chem. Reihe 21]: 663. 1973; "H. R.", *Biol. Abstr.* 55: 4606. 1973; Mold. in Woodson, Schery, & al., *Ann. Mo. Bot. Gard.* 60: 131. 1973; R. R. Rao, *Stud. Flow. Pl. Mysore Dist.* 2: 755 [thesis]. 1973; Vartak, *Indian Nat. Sci. Acad. Bull.* 45: 256. 1973; Roth, *Nov. Pl. Sp.*, imp. 2, 319--320. 1975; Mold., *Phytologia* 31: 389 (1975) and 34: 280. 1976; Saxena & Khotele, *Journ. Bomb. Nat. Hist. Soc.* 73: 29. 1976; Mold., *Biol. Abstr.* 64: 6574. 1977; Mold., *Phytologia* 36: 164 (1977) and 38: 178. 1978; Khosla & Sareen, *Indian Journ. Forest.* 1: 174. 1978; Sharma, Shetty, Vivekan., & Rathak., *Journ. Bomb. Nat. Hist. Soc.* 75: 33. 1978; Hocking, *Excerpt. Bot. A.33:* 86. 1979.

Recent collectors describe this species in its typical form as a treelet or as a small, medium-sized, or large tree, to 20 m. tall, evergreen, water-loving, branching profusely at the top, with a dense or full rounded crown, forming a canopy, the bole to 30 feet long, the trunk very much fluted in cross-section, with twisted wavy ridges, to 1.3 m. in diameter at breast height, girth often 2--4 feet, the bark white or gray-white to dark-gray, brownish, or pale-brown, roughish, cracked to merely striate, the outer bark often smooth and white; leaves compound, the leaflets usually 3 or 5, very coriaceous and bicolored, 10--12 cm. long; flowers scented; calyx green; the corolla-throat pubescent, the anthers dark to purple or even dark-purple; fruiting-calyx persistent, covering 2/3 of the fruit; fruit green when immature, turning purple, purple-brown, or black when ripe, ovoid or elliptic to olive- or pear-shaped, smooth, 1-seeded, the pericarp fleshy. They have found it growing in swamps or swampy areas, along the edge of the water of rivers, streamlets, or lakes, as well as surrounding used or abandoned tanks, on savannas or in the riparian forests bordering savannas, in primary and secondary forests, at the margins of granitic outcrops and in large rock-outcrop areas, in the vegetation ring around villus, along mountain streams, on forested sandy riverbanks, in the sandy soil of beaches and dunes, and in the loose, sandy soil or loam of semidry streams, from sea-level to 850 m. altitude. They have found it in flower from March to July, as well as in October and November, and in fruit from April to June and in October and November. Worthington tells us that in the dry zone of Sri Lanka it always grows near water. He collected it in an area of annual rainfall of 70 inches. Cramer

asserts that it is "common along banks" in Sri Lanka, but he also reports it "isolated" in some areas. Saldanha reports it "common" in Mysore. Nicolson and his associates refer to it as "frequent" in Mysore; Townsend found it "scattered" in Sri Lanka. Thwaites (1861) says that it is "Not uncommon" in the hotter parts of Sri Lanka.

Khosla & Sareen (1978) report the chromosome number of this species as $4x = 32$. The corollas are described as "white" on Alston 1050, Cramer 3006, Meijer & Balakrishnan 119, Townsend 73/253, and Wirawan & al. 914a, "bluish" on Waas 606, "purplish" on Hladik 817 & 824, "whitish" on Jayasuriya 2118, "faintly blue" on Waas 573, "white with purple pubescence in the throat" on Nowicke & al. 364 & 365, "white with purple hairs above" on Jayasuriya 1937, "white with purple hairs at the tip" on Alston 2478, "white with mauvish hairs" on Amaratunga 1037, "white, the lower lip with purplish or purplish-bluish hairs inside" on Sumithraarachchi DBS. 352, "lip purple, bearded" on Ramamoorthy & Ganshi HFP.2764, "white with purple hairs on the lower lip" on Saldanha 13009 & 13348, "white, the throat pubescent" on Nowicke & al. 280, and "with purple hairs on the lower lip and throat" on Saldanha 16745.

The leaflets are quite hairy on Cramer 3006 and Wirawan & al. 914a, while they are almost glabrous on Hladik 817. They are uniformly 3 in number on Herb. Hort. Bot. Calcut. s.n., Saldanha 13318, and Worthington 4237, 4257, & 4649; 3 or 4 in number on Worthington 2046; 3-5 on Worthington 6964; and uniformly 5 on Hohenacker 451, Meijer & Balakrishnan 119, and Talbot 97. They are exceptionally broad on Collector undetermined s.n. and on Saldanha 13175 & 16745, while exceptionally narrow on Ramamoorthy HFP.1597. Worthington 4649 represents material taken from a sapling. Wight 2326, the type collection of *Wallrothia tomentosa*, has hairs along the midrib beneath and has the veins prominent above -- characters exhibited also by Alston 2478, Herb. Hort. Bot. Calcut. s.n. and Talbot 97.

Mueller-Dombois & Comanor tell us that the species is "an important tree" in Sri Lanka. Loudon (1832) asserts that it was introduced into cultivation in England from Sri Lanka in 1793. The fruit is used as a fish poison in Sri Lanka according to Nowicke and his associates, while Davidse reports the fruit is eaten by parrots there. Wirawan & al. 914a serves as voucher for ecologic observations.

Ghosh (1968) reports that *V. leucoxylon* serves as host for the loranthaceous parasite, *Dendrophthoe falcata* (L. f.) Ettingsh., while Hansford (1961) reports it as host for the fungus, *Meliola cookeana* Speg. in Bombay, the latter record being based on Sedgewick s.n.

Vernacular names reported for *Vitex leucoxylon* include "hole-lakki", "kaddunochchi", "kaddu-nochchi", "kardu-nochi", "kyet-yoh", "lokki", "narda", "nebedda", "nébedda", "né-bedda", "nir", "nir-nochchi", "nochi", "samalu", "senkani", "sheras", "sheru", "sonagarbi", "songarbi", and "white-wooded wallrothia". The initial letter of the specific epithet was almost uniformly uppercased

by authors until very recently.

The Haines (1922) reference in the bibliography of this species is sometimes cited as "6: 711--713. 1924", but pages 419 to 754 of edition 1 are actually in part 4 of the work and were issued in 1922. The Willis (1911) reference is sometimes cited as "3: 358", but I have thus far been unable to verify this reference.

The younger Linnaeus' original (1781) description of this taxon is "*VITEX* foliis digitatis quinatis: foliolis petiolatis oblongis integerrimis, paniculis dichotomis, bacca monosperma. Habitat in vastis sylvis Zeylonae. König. Simillima *V. trifoliae*, sed differt foliis utrinque glaberrimis, panicula dichotoma a prima divisione." Kurz (1870) describe the species as "A large forest tree along the western coast of South Andaman, around Port Mouat, but also occurring around Port Blair". Troup (1921) calls it "A small or large deciduous tree with a short thick trunk and spreading crown. Bark smooth, light-grey. Wood light greyish brown or pinkish, durable. Indian Peninsula from the Chanda district southwards, chiefly along banks of streams, Kanara and the Konkan. Flowers, February--March, fruits, June."

Clarke (1885) cites "Roxburgh, Rottler, &c." and gives the species' distribution as "S. Deccan Peninsula and Ceylon, up to 3000 ft.", noting that "In the typical form the leaflets are coriaceous, shining, yellowish beneath, nervation obscure: in *V. saligna*, Roxb., they are more membranous, the reticulate nervation distinct on both surfaces. A very handsome form with broader leaflets is marked *Wallrothia tomentosa* by Wight; but the extreme membranous narrow-leaved *V. saligna* (Roxburgh's specimen) shows similar hair on each side the midrib beneath". Naire (1894) describes the species as "A small tree, leaflets 3 to 5 entire smooth, flowers whitish in dichotomous panicles, lower lip of corolla large and bearded with violet hairs, fruit oval or ob-ovate, smooth, black." In western India he records it from "S. Konkan, Ghauts, and S. M. country". Worthington (1959) reports that in Sri Lanka it flowers in July and August and that its timber weighs 48 pounds per cubic foot, is purple-brown to dark-gray, hard, fine-grained, and durable, and is used there to make cart frames.

Puri (1960) tells us that in India *Vitex leucoxylon* is found in the undergrowth of windward valleys where drainage is good, growing in association with *Eugenia*, *Musa*, and *Alpinia* in the southern wet tropical evergreen forests of the western Ghats. Agarwal (1970) reports it from four low-lying districts of Madras and asserts that the wood is whitish-gray when fresh, light, even-textured, warping on seasoning, moderately hard, and can withstand diseases "for a limited period", weighing 17.40 kgm. per cubic foot; "Used for cartwheels in Madras, in general construction at other places & can be tried for boards". Patel (1968) describes it as "A large deciduous tree with white bark; young parts pubescent" and found it "scarce" along riverbanks in Melhat [Bombay], flowering in March and April and "Perhaps all the year round". He further says that there are 4 seeds per fruit

and that the wood is grayish-brown, moderately hard, weighing 610 kg, per cubic meter. Cooke (1905) reports it flowering in Bombay from February to April and cites unnumbered collections by Cooke, Graham, Law, Talbot, and Woodrow from the banks of rivers and nalas in moist forests in the Bombay area. Trimen (1895) reports it in Sri Lanka from the "Dry country: common, especially near tanks", flowering there in July and August, the flowers being "white with purplish hairs", and the wood dark-gray, hard, fine-grained, durable, shining.

The name, *Vitex tomentosa* Wall., referred to in the synonymy of *V. leucoxylon*, is based on Wallich 1747H from the Madras herbarium of the East India Company at Kew and is most probably the same as *V. tomentosa* Wight. Wallich (1831) cites as *V. leucoxylon* his 1749D from Silhet, 1748E from the Roxburgh herbarium, and 1749F from Gualpara.

Ellis (1968) cites his no. 23727 from Andhra Pradesh; Saxena & Khotele (1976) cite Khotele 6057 & 9396 and Saxena 1491, 1596, & 5484. Sharma and his associates (1978) refer to the species as a "common tree with white flowers" in Tamil Nadu, citing Rathakrishnan 37983 and Vivekananthan 40742.

The Mueller-Dombois & Balakrishnan 68091211, distributed as typical *V. leucoxylon*, actually is the type collection of f. *zeylanica* (Mold.) Mold., and Bernardi 15282, Comanor 595, Davidse & Sumithraarachchi 8234, Fosberg & al. 51081 & 57012, Jayasuriya 316, Nowicke & Jayasuriya 280, Saldanha 13175, Simpson 8508, Sohmer 8953, Van Beusekom & Van Beusekom 1643, Waas 367, and Wirawan, Cooray, & Balakrishnan 914 also represent that form, while Koelz 22383, Stocks, Law, &c. s.n. [Malabar, Concan, &c.] are f. *saligna* (Roxb.) Mold., of which Wallich 1748 & 1748/2 are cotypes; Falconer 509 is *V. peduncularis* Wall.

Additional citations: INDIA: Karnataka: Collector undetermined s.n. [Mysore] (Pd); Nicolson, Saldanha, & Ramamoorthy HFP.217 (W--2653617); Ramamoorthy HFP.1597 (W--2794867); Ramamoorthy & Gandhi HFP.2764 (N, W--2794860); Saldanha 13009 (W--2794861), 13318 (W--2794866), 13348 (W--2653616), 16639 (W--2794864), 16745 (W--2794863); Saldanha & Ramamoorthy HFP.1644 (W--2794865). Kerala: Hohenacker 451 (Mu--649, Mu); Stocks, Law, &c. s.n. [Malabar, Concan, &c.] (Mu--648, Pd); Talbot 97 (Pd). Tamil Nadu: Wight 2326 (Mu--1347, Pd). SRI LANKA: Alston 1050 (Pd); Amaratunga 1037 (Pd); L. H. Cramer 3006 (Pd, W--2718259), 4649 (W--2833956); Davidse 7439 (Ld, W--2806278); Gardner s.n. [Thwaites C.P.1957] (Pd); Hancock s.n. [Worthington 6964] (K); Hladik 817 (Pd, W--2761097), 824 (W--2761099); Jayasuriya 305 (Pd, W--2721045), 1937 (Ac, W--2807768), 1961 (Ld, W--2807847), 2118 (Ld, W--2807747); Meijer & Balakrishnan 119 (Pd, W--2716064); Moldenke, Moldenke, & Jayasuriya 28224 (Ac, Gz, Kh, Ld, Pd, Tu, W--2764479, Z); Mueller-Dombois & Comanor 67083110 (W--2512112); Nowicke, Fosberg, & Jayasuriya 364 (N, Pd, W--2707473), 365 (N, Pd, W--2707474); Reitz 30021 (W--2762781); Sohmer 8144 (N, W--2807755); Sumithraarachchi DBS.352 (Ac, Gz, Lc, Ld); C. C. Townsend 73/253 (W--2765889); Vincent 13 (Pd); Waas 573 (Ld, W--2803404), 606 (N, W--2803435); Walker 180 (Pd); Wirawan, Cooray, & Balakrishnan 914a (Ld, N, Pd, W--2656635);

Worthington 2046 (K), 4237 (K), 4257 (K), 4649 (K). BURMA: Upper Burma: Griffith 6062 (Mu--673). CULTIVATED: India: *Herb. Hort. Bot. Calcut. s.n.* (Pd). Sri Lanka: Alston 2578 (Pd). LOCALITY OF COLLECTION UNDETERMINED: Bureau & Schumann *s.n.* (Mu).

VITEX LEUCOXYLON f. *SALIGNA* (Roxb.) Mold., *Phytologia* 38: 178. 1978.

Synonymy: *Vitex saligna* Roxb., *Hort. Beng.* 46. 1814; *Fl. Ind.*, ed. 2, 3: 75. 1832.

Bibliography: Roxb., *Hort. Beng.* 46. 1814; Sweet, *Hort. Brit.*, ed. 1, 1: 323. 1826; Wall., *Numer. List* [48], nos. 1748 & 1748/2. 1829; Sweet, *Hort. Brit.*, ed. 2, 416. 1830; Loud., *Hort. Brit.*, ed. 2, 441. 1832; Roxb., *Fl. Ind.*, ed. 2, 2: 75. 1832; G. Don in Sweet, *Hort. Brit.*, ed. 3, 551. 1839; Thwaites, *Enum. Pl. Zeyl.* 2: 244. 1839; Voigt, *Hort. Suburb. Calcut.* 469. 1845; G. Don in Loud., *Hort. Brit. Suppl.* [3]: 657. 1850; Buek, *Gen. Spec. Syn. Candoll.* 3: 502. 1858; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, imp. 1, 244. 1861; Jacks in Hook. f. & Jacks., *Ind. Kew.*, imp. 1, 2: 1214. 1895; Prain, *Bengal Pl.*, imp. 1, 2: 833. 1903; Mold., *Prelim. Alph. List Inv. Names* 52. 1940; Mold., *Alph. List Inv. Names* 55. 1942; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 2, 2: 1214. 1946; Mold., *Résumé* 388. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 3, 2: 1214. 1960; Thwaites & Hook. f., *Enum. Pl. Zeyl.*, imp. 2, 244. 1964; Mold., *Fifth Summ.* 2: 727. 1971; Mold., *Phytologia* 38: 178. 1978; Hocking, *Excerpt. Bot. A.33*: 86. 1979.

This form, apparently confined to the Indian subcontinent, has more membranous leaf-blades, which are more uniformly narrow-elliptic and 3--4 times as long as wide, with the reticulate venation distinct and often sub prominulous on both surfaces, often with pubescence along each side of the midrib beneath. In the typical form of the species the leaf-blades are more coriaceous in texture, mostly oblong to oblong-elliptic, only 2--3 times as long as wide, and usually glabrate on both surfaces, the venation more obscure and flat.

Prain (1903) refers to what is probably this form of the species as "A considerable tree" in Orissa "on islands in the river Mahanadi; perhaps only introduced". Voigt (1845) reports it cultivated in the Calcutta area (where one of Wallich's cotypes also originated). Sweet (1826) asserts that it was introduced into cultivation in England from "E. Indies" [=eastern India] in 1823. Thwaites (1839) and Thwaites & Hooker (1861) list the name, *Vitex saligna*, as a synonym of typical *V. leucoxylon*, but the C.P.1957 collection from Sri Lanka which they cite is, indeed, typical *V. leucoxylon*; and is not at all representative of Roxburgh's *V. saligna* as they seem to imply.

The form is based on Wallich 1748 and 1748/2, the former collected from cultivated material in the Calcutta Botanical Garden and the latter collected by Dr. B. Heyne on the Coromandel coast of southeastern India [Madras] in 1808, both deposited in the East India Company Herbarium at Kew. Roxburgh gives an adequate description of the taxon in his 1832 work and accepts it as a

valid species. The common name, "willow-leaved chaste-tree", has been recorded for it. Recent collectors describe it as a tree, the trunk 2 inches in diameter, and the "flowers white, with a purplish brush in the throat" [Koelz 22383], and have found it in flower in March.

Citations: INDIA: Bastar: Koelz 22383 (N). Kerala: Stocks, Law, &c. s.n. [Malabar, Concan, &c.] (M, S). Tamil Nadu: Heyne s.n. [Wallich 1748/2] (Cb--cotype, N--photo of cotype, Z--photo of cotype). CULTIVATED: India: Wallich 1748 (Cb--cotype, N--photo of cotype, Pd--cotype, T--cotype, Z--photo of cotype), s.n. (Cp).

VITEX LEUCOXYLON f. *ZEYLANICA* (Mold.) Mold., *Phytologia* 36: 164. 1977.

Synonymy: *Vitex leucoxylon* var. *zeylanica* Mold., *Phytologia* 21: 419. 1971. *Vitex leucoxylon* f. *subserrata* Mold., in herb.

Bibliography: Mold., Fifth Summ. 2: 926 & 969. 1971; Mold., *Phytologia* 21: 419. 1971; Anon., *Biol. Abstr.* 53 (10): B.A.S.I.C. S.266. 1972; Mold., *Biol. Abstr.* 53: 5252 (1972) and 64: 6574. 1977; Mold., *Phytologia* 36: 164. 1977.

This form differs from the typical form of the species chiefly in its leaflets averaging smaller, 2.5--9 cm. long and 1.3--3.5 cm. wide, at least the larger ones more or less serrate with irregularly placed, often remote, appressed, antrorse teeth toward the apex or only undulate-repand, mostly dull-gray above in drying, the veinlet reticulation usually conspicuous and obtusely subprominent above, apically often obtuse.

Three of the collections cited below are in fruit and another is in flower, so the characters exhibited by the leaves cannot be dismissed as merely those of a seedling, juvenile, or sucker (watersprout) as is the case in the form of *V. altissima* L. f. with its broadly winged petioles.

Collectors describe this plant as a treelet or as a small to medium-sized tree, dense, spreading, with the aspect of *Olea europaea*, 4--10 m. tall, the trunk 30--50 cm. in diameter at breast height, the bark gray-brown or white, somewhat rough or fissured, the branches drooping, terete, stout, "white-fuscous", the leaves 5-foliolate, decidedly coriaceous and bicolored, hairy, the cymes slender, open, the rachis green, the flowers fragrant, and the fruit ovoid or olive-shaped, 2 cm. long, green or pale-green when immature, becoming bluish-black or black and soft when mature, hard-seeded, the pericarp "mushy". They have found it growing in grassy clearings near the seashore, on tank margins, near streams in wet deciduous forests, in sparse forest on rocky-knob plains, on forested sandy riverbanks, in shallow soil cap over gneiss, and in sedge wewa associated with *Zyzygium*, from sealevel to 160 m. altitude, in flower from September to November and in January, in fruit from September to November. The Van Beusekom report encountering it "in a dry area near village" (an unusual habitat!). Comanor refers to it as "isolated" in Sri Lanka, but Saldanha reports it "common" in Mysore. Mueller-Dombois & Balakrishnan 68091211 and Wirawan & al. 914 were collected to serve as vouchers for ecologic observations. The only

vernacular name reported is "nir-nochchi".

The corollas are said to have been "white" on *Bernardi* 15282, *Simpson* 8508, and *Wirawan & al.* 914, "white, the lower central lobe longer and with purple hairs" on *Saldanha* 13175, "white with purplish pubescence on the upper lobes" on *Jayasuriya* 316, "white with mauve center to lower lip" on *Fosberg & al.* 51081, and "white with purplish honey-guides" on *Sohmer* 8953.

Most material of this taxon has been identified and distributed in herbaria as typical *V. leucoxylon* L. f. or, in one case, as *Bursera* sp. in the *Burseraceae*.

Citations: INDIA: Karnataka: *Saldanha* 13175 (N, W--2794867). SRI LANKA: *Bernardi* 15282 (Mu, N, W--2808312); *Comanor* 595 (Mi, Mi, N, Pd); *Davidse & Sumithraarachchi* 8234 (Ld, W--2808665); *Fosberg & Jayasinghe* 57012 (Ld); *Fosberg, Mueller-Dombois, Wirawan, Cooray, & Balakrishnan* 51081 (N, Pd, W--2720552); *Jayasuriya* 316 (Pd, W--2720851); *Mueller-Dombois & Balakrishnan* 68091211 (Pd--isotype, W--2612113--type, W--2612114--isotype, Z--isotype); *Nowicke & Jayasuriya* 280 (N, W--2707310; N. D. *Simpson* 8505 (N); *Sohmer* 8953 (Lc, N, W--2804881); *Van Beusekom & Van Beusekom* 1643 (W--2656410); *Waas* 367 (N, W--2803402); *Wirawan, Cooray, & Balakrishnan* 914 (Ld, N, Pd, W--2656634).

VITEX LIMONIFOLIA Wall.

Additional & emended bibliography: Buek, Gen. Spec. Syn. Can-doll. 3: 502. 1858; Kurz, Forest Fl. Brit. Burma 2: 269, 271--272, & 612. 1877; Gamble, Man. Indian Timb., ed. 1, 296 & 522 (1881) and ed. 2, 541. 1902; F. N. Will., Bull. Herb. Boiss., ser. 2, 5: 431. 1905; Brandis, Indian Trees, imp. 1, 504. 1906; Kanjilal, Das, Kanjilal, & De, Fl. Assam 3: 479, 483, & 561. 1939; Burkill, Dict. Econ. Prod. Malay Penins. 2: 2278. 1966; Mold., Phytologia 17: 9, 22, & 23. 1968; Mold., Résumé Suppl. 16: 13 & 29. 1968; Brandis, Indian Trees, imp. 2, 504. 1971; Mold., Fifth Summ. 1: 284, 298, 303, & 374 (1971) and 2: 712, 713, & 926. 1971; Mold., Phytologia 23: 423 (1972), 28: 445 (1974), and 44: 355 & 356. 1979.

Clarke (1885) comments concerning this species: "The leaves are exceedingly like those of *V. pubescens* [=*V. pinnata* L.], except that the petiole is winged; the elongated interrupted panicle-branches are quite different". He records it from Ava, Pegu, and Tenasserim in Burma, as well as from Thailand, citing only "Wallich, &c." Kanjilal and his associates (1939) list it from the Khasi Hills in Assam, citing a Brandis collection, and assert that in that area it flowers from May to July and fruits from September to November.

Recent collectors describe the species as a small tree, 6--10 m. tall, the wood blaze green and orange over tan, the anthers very dark-purple, and have found it in anthesis in June, July, and October, and in fruit in September. The corollas are said to have been "violet" in color on *Larsen & al.* 2199, "cream-colored" on *King* 5474, "lavender" on *King* 5488, and "with whitish upper and blue-purplish lower lip, with a yellow streak" on *Van Beusekom & Phengkhrai* 1232. They have encountered it along open grassy road-

sides, in dry dipterocarp forests, along roadsides in open secondary forests, in open sun in streambeds, and in scrub with occasional trees to 15 m. tall along with *Bauhinia* and *Lantana*, at 40--400 m. altitude. King 5474 & 5488 were collected to serve as vouchers for wood samples, the latter collection accompanied by two photographs of the foliate in situ. King 5464 is said by the collector to have been taken from specimens growing wild and also cultivated in a garden.

The Geesink & Santisuk 4992, distributed as *V. limonifolia*, actually is *V. pinnata* L.

Additional citations: THAILAND: R. M. King 5474 (W--2435992), 5488 (W--2435880, W--2435892), s.n. [15 June 1963] (W--2436013); Larsen, Santisuk, & Warncke 2199 (Ac, Ld); Maxwell 73-683 (Ac, Ac), s.n. [11.10.1969] (Ac); Shimizu, Koyama, & Nalampoon T.10687 (Ac); Van Beusekom & Phengkhla 1232 (Ac).

VITEX LINDENI Hook. f.

Additional bibliography: Bean in Chittenden, Dict. Gard. 2249. 1956; Mold., Phytologia 15: 254. 1967; Mold., Fifth Summ. 1: 374 (1971) and 2: 721 & 926. 1971.

VITEX LOBATA Mold.

Additional bibliography: Mold., Phytologia 15: 254. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 926. 1971.

VITEX LOBKOWITZII Ettingsh.

Additional & emended bibliography: H. N. & A. L. Mold., Pl. Life 2: 42 & 70. 1948; Mold., Phytologia 15: 254. 1967; Mold., Fifth Summ. 1: 376 (1971) and 2: 926. 1971.

VITEX LOKUNDJENSIS Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403 & 404. 1938; H. N. & A. L. Mold., Pl. Life 2: 67. 1948; Mold., Phytologia 15: 254. 1967; Mold., Fifth Summ. 1: 224, 232, 238, & 249 (1971) and 2: 720, 721, & 926. 1971.

Schlieben describes this species as a tree, 20--30 m. tall, and reports it "scattered" to "abundant" in Tanzania, at 1370 m. altitude, flowering in January, the corollas said to have been "light-blue" on his no. 3255. Material of the species has been misidentified and distributed in some herbaria as *V. lehmbachii* Gürke.

Additional citations: CAMEROONS: Zenker 3899 (Mu--isotype, W--554334--isotype). TANZANIA: Tanganyika: Schlieben 1681 (Mu), (Mu).

VITEX LOKUNDJENSIS var. *KRUCKEI* Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403 & 404. 1938; Mold., Phytologia 15: 254. 1967; Mold., Fifth Summ. 1: 224 & 232 (1971) and 2: 720, 721, & 926. 1971.

VITEX LONGIPETIOLATA Gürke

Additional bibliography: Good & Exell, Journ. Bot. Lond. 68:

Suppl. 144. 1930; Mold., *Phytologia* 15: 254 (1967) and 17: 35. 1968; Mold., Fifth Summ. 1: 224 (1971) and 2: 926. 1971.

Good & Exell (1930) report encountering this species in secondary woods grown up on old plantation grounds in what used to be Portuguese Congo, flowering in February, citing their no. 7841 and reporting the species also from Zaire and Cameroons.

Additional citations: CAMEROONS: Zenker 1888 (Mu--3774--isotype), 3185 (Mu--4029, Z), 4795 (Mu, Mu).

VITEX LONGISEPALA King & Gamble

Additional & emended bibliography: H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 50. 1921; Ridl., Kew Bull. Misc. Inf. 1929: 261--262. 1929; Burkhill, Dict. Econ. Prod. Malay Penins. 2: 2279. 1966; Mold., *Phytologia* 17: 9. 1968; Chen & Tso, Chem. Pharm. Bull. Tokyo 17: 1284--1286. 1969; Farnsworth, Pharmacog. Titles 5 (4): xii & item 4123. 1970; Mold., *Phytologia* 33: 375. 1976; Mold., Fifth Summ. 1: 298 & 306 (1971) and 2: 721 & 926. 1971; Mold., *Phytologia* 34: 266 (1976) and 44: 484. 1979.

Burkill (1966) describes this species as "A tree of fair size, found from Penang to Negri Sembilan. The timber is apt to be crooked, but is good and is used for objects suitable to its size." He reports the vernacular names, "gading kahua", "halban", "lēban bunga" [flowery lēban], "lēban kunyit" [turmeric lēban], and "pokok galang dapur" [hearth-frame plant]. He comments that "The name 'kahua' (coffee) ascribed to it is interesting in connexion with the use of the fruits of *V. cienkowskii* [=*V. doniana* Sweet] for coffee in Africa".

Recent collectors describe *V. longisepala* as a tree, 25 feet tall, the trunk 12--21 cm. in diameter at breast height, growing in primary forests and swamp forests, and have found it in flower in February and December.

Additional citations: MALAYA: Selangor: Ogata Kep 110216 (Ac); Sider 13197 (Ac, E--2047843).

VITEX LONGISEPALA var. *LONGIPES* Mold., *Phytologia* 33: 375. 1976.

Bibliography: Mold., *Phytologia* 33: 375 (1976) and 34: 266. 1976.

Collectors describe this plant as a tree, 3 m. tall, the trunk to 6 cm. in diameter at breast height, the "bracts and calyx brownish-green", and have found it growing in moist forests and at the edges of evergreen forests, at 6200 feet altitude, flowering in April and October. The corollas are said to have been "yellow" on Maxwell 78-117.

The variety differs from the typical form of the species in having the two lateral leaflets of each leaf distinctly petiolulate on petiolules 6--10 mm. long. It is known thus far only from Malaya.

Citations: MALAYA: Pahang: Jong 4517 (Kl--4517); Poore 564 (Kl--564). Selangor: Maxwell 78-117 (Ac); Sider s.n. [Dec. 1969] (Ac--photo of type, Kl--13197--type, N--photo of type, Z--photo of type).

VITEX LUCENS T. Kirk

Additional synonymy: *Vitex lucen* Godley, Biol. Abstr. 54 (9): B.A.S.I.C. S.278 & S.280, sphalm. 1972; Mold., Phytologia 25: 244, in syn. 1973.

Additional bibliography: Dieffenb., Trav. N. Zeal. 1: 431. 1843; Walp., Repert. Bot. Syst. 4: 84. 1844; Schau. in A. DC., Prodr. 11: 691. 1847; Buek, Gen. Spec. Sysn. Candoll. 3: 502. 1858; J. Sm., Dict. Pop. Names Pl. 341 & 408. 1882; J. Adams, Trans. Proc. N. Zeal. Inst. 17: 282. 1884; Perkin, Journ. Chem. Soc. 77: 416. 1900; Barger, Journ. Chem. Soc. 89: 1210. 1906; Alston, N. Zeal. Journ. Agric. 26: 149--156. 1923; Janssonius, Mikrogr. Holz. 812. 1926; Wangerin, Justs Bot. Jahresber. 55 (1): 834. 1935; Peteri, Journ. Chem. Soc. 1939: 1635--1637. 1939; Peteri, Chem. Abstr. 34: 764. 1940; Nakaoki, Journ. Pharm. Soc. Jap. 64: 57. 1944; J. W. Matthews, N. Zeal. Trees, ed. 2, imp. 2, [80] & 81. 1953; Fiedler, Arzneimittel-Forsch. 5: 609. 1955; Geissman & Jurd, Arch. Biochem. Biophys. 56: 259. 1955; Sharma, Journ. Sci. Indust. Res. India 41 B: 267. 1955; Davies, N. Zeal. Nat. Pl. Stud., ed. 1, 132--133, pl. 51. 1956; Fiedler, Chem. Abstr. 50: 2761. 1956; Geissman & Kranen-Fiedler, Naturwiss. 43: 226. 1956; Rao & Venkateswarlu, Curr. Sci. 25: 328. 1956; Evans, Mc Gookin, Jurd, Robertson, & Williamson, Journ. Chem. Soc. 1957: 3510. 1957; Hinds, N. Zeal. Forest Serv. Bull. 21: 63, 80, 92, 105, 110, & 133. 1957; Jurd, Geissman, & Seikel, Arch. Biochem. Biophys. 67: 284 (1957) and 71: 17. 1957; Robertson & Williamson, Journ. Chem. Soc. 1957: 5018. 1957; Whalley, Chem. Ind. 1958: 361. 1958; Cambie, Chem. Ind. 1959: 87. 1959; Hörhammer, Wagner, Nieschlag, & Wildi, Arch. Pharm. 292: 380. 1959; J. W. Matthews, N. Zeal. Trees, ed. 2, imp. 2, [80] & 81. 1959; Bate-Sm. & Swain, Chem. Ind. 1960: 1132. 1960; Griseb. & Patschke, Chem. Ber. 93: 2326. 1960; Liberta, Mycologia 52: 902. 1960; Brooker & Cooper, N. Zeal. Med. Pl. 36. 1961; W. B. Cooke, Mycologia 53: 584. 1961; Davies, N. Zeal. Nat. Pl. Stud., ed. 2, 132--133, pl. 51. 1961; Williamson, Chem. Ind. 1961: 1168. 1961; Anon., Hortic. Abstr. 32: 202. 1962; Belic, Bergand-Dolar, & Morton, Journ. Chem. Soc. 1961: 2523--2525. 1961; Kariyone, Ann. Ind. Rep. Pl. Chem. 1959: 94 & 95. 1962; Rao & Venkateswarlu, Journ. Sci. Ind. Res. India 12 B: 313. 1962; Brooker, Cain, & Cambie, Trans. Roy. Soc. N. Zeal. 1 (7): 61--87. 1963; Graf, Exotica 3: 1482 & 1734. 1963; Horowitz & Gentili, Chem. Ind. 1964: 498. 1964; Kariyone, Ann. Ind. Rep. Pl. Chem. 1957: 54--55. 1964; Laing & Blackwell, Pl. N. Zeal., ed. 7, 371--373, fig. 139. 1964; Hänsel, Leuckert, Rimpler, & Schaaf, Phytochem. 4: 19. 1965; Hillis & Horn, Austral. Journ. Chem. 18: 531. 1965; Hörhammer, Wagner, Rosprim, Mabry, & Rösler, Tetrahed. Lett. 1065: 1707. 1965; Neal, In Gard. Hawaii, ed. 2, 729. 1965; Seikel & Mabry, Tetrahed. Lett. 1965: 1105. 1965; Williamson, Chem. Ind. 1961: 1168. 1965; Horowitz & Gentili, Chem. Ind. 1966: 625. 1966; Seikel, Chow, & Feldman, Phytochem. 5: 439. 1966; D. E. Clark, Sunset New West. Gard. Book, ed. 4, imp. 1, 498. 1967; Cockayne & Turner, Trees N. Zeal. 133, 166, & 181. 1967; R. E. Alston in Mabry, Recent Adv. Phytochem. 1: 311, 316, & 317. 1968; Mold., Phytologia 17: 9--10. 1968;

Prox, Tetrahed. 24: 3697. 1968; Uphof, Dict. Econ. Pl., ed. 2, 122, 520, & 545. 1968; Farnsworth, Blomster, Quimby, & Schermerh., Lynn Index 6: 267. 1969; A. L. Mold., Phytologia 18: 128. 1969; Yeo in Synge, Suppl. Dict. Gard. 551. 1969; Farnsworth, Pharmacog. Titles 5 (8): xvii & item 7654 (1970) and 5 (10): xxiv & item 11860. 1970; M. A. & I. M. Ritchie, N. Zeal. Ecol. Soc. Proc. 17: 57--57. 1970; Anon., Biol. Abstr. 52: 5448 (1971) and 52 (10): B.A.S.I.C. S.267. 1971; Boquiren, Mycologia 63: 954. 1971; Bouillant & Chopin, Compt. Rend. C.273: 1759--1762. 1971; Farnsworth, Pharmacog. Titles 5: Cum. Gen. Ind. 1971; Godley, N. Zeal. Journ. Bot. 9: 561--568, fig. 1--5. 1971; J. Lloyd, Dyes Pl. 22 & 48. 1971; Mabry, Yoshioka, & Sutherland, Phytochem. 10: 677. 1971; Mold., Fifth Summ. 1: 350 & 374 (1971) and 2: 491, 718, 729, & 926. 1971; M. A. & I. M. Ritchie, Biol. Abstr. 52: 5448. 1971; Anon., Biol. Abstr. 54 (8): B.A.S.I.C. S.282 (1972) and 59 (9): B.A.S.I.C. S.278 & S.280. 1972; I. L. Barton, N. Zeal. Journ. Bot. 10: 14. 1972; Bouillant & Chopin, Compt. Rend. C.274: 193--196. 1972; Farnsworth, Pharmacog. Titles 7 (1): xx & item 490 (1972) and 7 (2): vi & item 2816. 1972; Fogg, Newslet. Arb. Barnes Found. 8: 3. 1972; Gaffield & Horowitz, Chem. Comm. 1972: 648. 1972; Godley, Biol. Abstr. 54: 4572. 1972; L. J. Metcalf, Cult. N. Zeal. Trees Shrubs 259--260, 274, & 292. 1972; "S. L. R.", Biol. Abstr. 54: 4394. 1972; Harborne in L. P. Mill., Phytochem. 2: 352. 1973; Hegnauer, Chemotax. Pfl. 6 [Chem. Reihe 21]: 661, 663, & 673. 1973; Mold., Phytologia 25: 244. 1973; Mold. in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 131. 1973; Van Hove & Craig, Ann. Bot. 37: 1013--1016, pl. 4. 1973; Wedge, Pl. Names, ed. 1, 14 & 15. 1973; Williamson, Sunset West. Gard. Book, ed. 3, imp. 11, 440. 1973; Gibbs, Chemotax. Flow. Pl. 3: 1753 & 1754 (1974) and 4: 2297. 1974; Hall & Burke, N. Zeal. Journ. Bot. 12: 287. 1974; Haslam, Shikimake Pathw. 191. 1974; Salmon, N. Zeal. Flow. Pl., ed. 2, imp. 3, 77 & 234. 1974; Van Hove & Craig, Biol. Abstr. 57: 3875. 1974; Wedge, Pl. Names, ed. 2, 19 & 21. 1974; [Farnsworth], Pharmacog. Titles 7: Cum. Gen. Ind. [118]. 1975; Kooiman, Act. Bot. Neerl. 24: 462. 1975; Meylan & Butterfield, N. Zeal. Journ. Bot. 13: 4. 1975; L. H. & E. Z. Bailey, Hortus Third 1162. 1976; D. E. Clark, Sunset New West. Gard. Book, ed. 4, imp. 2, 498. 1979; Mold., Phytologia 44: 338. 1979.

Additional illustrations: J. W. Matthews, N. Zeal. Trees, ed. 2, imp. 1, [80]. 1953; Davies, N. Zeal. Nat. Pl. Stud., ed. 1, 133, pl. 51. 1956; J. W. Matthews, N. Zeal. Trees, ed. 2, imp. 2, [80]. 1959; Davies, N. Zeal. Nat. Pl. Stud., ed. 2, pl. 51. 1961; Graf, Exotica 3: 1482. 1963; Laing & Blackwell, Pl. N. Zeal., ed. 7, 372, fig. 139. 1964; Godley, N. Zeal. Journ. Bot. 9: 562--564, fig. 1--5. 1971; Van Hove & Craig, Ann. Bot. Lond., ser. 2, 37: pl. 4. 1973; Salmon, N. Zeal. Flow. Pl., ed. 2, imp. 3, 77 (in color). 1974.

Davies (1956) comments that "The puriri is a most handsome tree, with dark glossy foliage. The leaves are of interest owing to the presence of 'domatia' or pits at the junction of the side-veins and mid-rib, as in the coprosmas. Because of the great value of its hard, durable timber for house-blocks, fence posts, etc., the

tree has become greatly depleted. A group of the trees at Waimate North owes its preservation to its former use by the Maoris as a storage place for human bones, which, of course, made it strictly tapu." Laing & Blackwell (1964) describe it as "A fine tree, from 50 ft. to 60 ft. in height, often called the New Zealand Oak, on account of the strength and durability of its timber. It is not injured by damp or exposure, and is therefore extremely valuable for ship-building purposes. The logs are often perforated with large holes, but these do not affect the timber, except in so far as it has sometimes to be cut to disadvantage. These holes are made by a soft-bodied grub, which develops into the puriti moth.... The roots.....never penetrate deeply into the ground, but lie near the surface, so that the tree is easily blown over in a gale of wind. It is endemic to New Zealand, and is restricted to the northern part of the North Island. It is easily cultivated, and flowers more or less all the year round."

Matthews (1953) add that "In recent times the Puriri has become one of our most popular trees for street planting, parks, and large private gardens [in New Zealand]. There are also still natural colonies of it to be seen in some of the northern parts of the North island. It is a particularly handsome tree, with its brilliant green, glossy, crinkled leaves, its charming pink or red flowers, red fruits and pleasing form. Under favourable conditions it develops into a nicely shaped tree some 60 feet in height, with a trunk that may measure 5 feet in diameter, although it is more usual to see specimens a little more than 20 feet with a trunk twelve inches in diameter. The bark is thin, smooth, and usually light brown in colour and the trunk is usually straight with a few small branches; sometimes, however, it adopts a short stature with large spreading branches. The trunk of an adult tree is almost invariably dotted with holes made by the larvae of the Puriri-moth, but this parasite does not appear to affect the health or age of the tree.....The fruit is a round 'cherry', bright red in colour, and usually about half an inch in diameter. The wood is dark brown, extremely hard, dense and heavy". Diefenbach (1843) asserts that "Its quality of splitting renders it an excellent wood for firing". Smith (1882) says that "Its wood is hard and dark brown, much used in all kinds of work....very hard and heavy.....used for purposes under water". He calls it the "New Zealand teak tree". Brooker & Cooper (1961) report that "The water from boiled leaves is still used to bathe sprains and backache....The infusion is also a remedy for ulcers, especially under the ear.....and for sore throats".

Cockayne & Turner (1967) report the species "Found in forests from the north of North Island to Mahia Peninsula on the east and Cape Egmont on the west but rare south of lat. 37°. Seasonal heartwood is a dark rich brown, extremely dense, hard, strong, and durable.....owing to its interlaced fibres, it is difficult to work. It was once used extensively for sleepers [railroad ties], posts, and house blocks, but timber sawn today goes mainly into bridges and wharves, where the almost universal occurrence

of grub holes is not a serious detriment. *Puriri* free from grub holes is excellent for furniture, carving, and other decorative woodwork." Uphof (1968) adds its use for "ships' blocks, machine beds and bearings; where great strength and durability are necessary". He misspells the vernacular name, "puzizi". The "Timor chaste tree" to which he also refers is *V. parviflora* A. L. Juss. and has nothing whatever to do with the New Zealand species.

Yeo (1969) describes the corolla of *V. lucens* as 7/8 inch long, the limb 4- or 5-lobed, oblique, the lobes rounded, the lateral and lower lobes reflexed, dull purplish-red, the throat and inner side of the tube tending toward straw-yellow, the outside of the tube flushed and striped pink. He recommends it for cultivation in the greenhouse.

Hinds (1957) tells us that in its native haunts *V. lucens* "is often associated with *Elaeocarpus dentatus* (Forst.) Vahl; assumes dominance on fertile soil loams over *Agathis australis* Salisb.; is an associated hardwood in the north with *Podocarpus spicatus* R. Br.; grows in mixed forests with *Laurelia novae-zeylandiae* A. Cunn.; is associated with *Knightia excelsa* R. Br. and with *Beilschmiedia teraii* Benth. & Hook. f." The Ritchies (1970) record it from Whatupuke island (in the Hen-and-chicken group of islands).

Godley (1971) discusses the fruit of *V. lucens* in detail, reporting that it has 4 apertures in the endocarp, each guarded by an oval door and each leading to a seed chamber. A similar structure is known in *Tectona grandis* L. f. "and could prove characteristic of the tribe Viticoideae". He reports that *V. lucens* is self-fertile with autogamy possible. Seed production in 12 samples ranged from 8 to 45 percent with usually only 1 or 2 seeds in a fruit. "Low seed production is due to inefficiencies in pollination, as well as breakdown of apparently fully developed seeds. The factors controlling germination and opening of the doors are unknown, and most seed would appear to perish within the imprisoning endocarp". Perforation plates, reticulate in the early wood but scalariform throughout the rest of the growth-ring, are reported in the wood by Meylen & Butterfield (1975). The perforation plates are mostly simple, but some simple to scalariform combination plates are also present.

Hall & Burke (1974) have studied the leaf-wettability of the species. They describe the species as a member of the forest canopy from sealevel to 300 m. altitude and the leaf surface wettability during rain as 100 percent film brought about by an adaxial surface morphology of cuticle ridging or rugose appearance and little wax present.

Metcalf (1972) asserts that "In its young stages it is of rapid growth and fairly quickly makes a reasonably-sized plant. It is particularly useful as a specimen tree but only in larger gardens. Young plants will not tolerate more than a few degrees of frost, but older plants are hardier. It prefers a deep and rather rich soil and should be given plenty of space in which to grow. Propagation is usually by seed but it can also be grown from cuttings."

Lloyd (1971) reports that its bark yields with alum and soda a

maize-yellow dye and with bichromate of potash a deep maize-yellow dye, while the ripe fruit with alum and soda yield a primrose-yellow dye. Gibbs (1974) found syringin and cyanogenesis absent from the leaves and the HCl/methanol test proved negative. Cambie (1976) lists the following substances in the wood: vitexin, saponaretin (isovitexin), β -sitosterol, aucubin, agnuside, isoorientin (lutonaretin), orientin (lutexin), vitexin- α -xyloside, orientin- α -xyloside, vicenin-3, vicenin-2, vicenin-1, lucenin-5, lucenin-4, lucenin-3, lucenin-2, lucenin-1, and 3 leucoanthocyanins. Homovitexin, an isomorph of vitexin, was reported from the species by Whally (1958) and Kariyone (1962), but Cambie (1959) has shown that isovitexin, homovitexin, and saponaretin are identical. In his 1959 and 1960 works he reports vitexin, β -sitosterol, and ceryl alcohol in the bark and pentatricontane, stearic acid, and β -carotene in the leaves. Seikel and his associates (1959, 1960) isolated vitexin, saponaretin, and their glycoside in the wood. Bouillant and his associates (1971) discuss lucenin-1 and -3. The chemical structure of the yellow pigment, vitexin ($C_{21}H_{20}O_{10}$) is discussed by Peteri (1939), Evans & al. (1957), Robertsson & Williamson (1958), Williamson (1961), Kariyone (1964), and Harborne (1973), mostly isolated from the milled wood.

Van Hove & Craig (1973) have found "a large population of bacteria and fungi" in the bud secretions of *Vitex lucens*. Cooke (1961) reports the species as host to the fungus, *Schizophyllum commune* (Fries) Fries, while Liberta (1960) lists *Xenasma vermiferum* (Bourd.) Liberta from the leaves and decayed wood and Boquiren (1971) found *Epithele vermifera* (Bourd.) Boquiren on this and on *Citharexylum fruticosum* L.

Recent collectors describe *Vitex lucens* as a small slender tree, 5--35 m. tall, wide-spreading, often occurring in isolated form, new trunks being formed from branches when a tree blows over, forming good stock shade, the trunk to 1.2 m. in diameter at breast height, the flowers scented, and the fruit at first green, then red and finally purple when ripe. They have encountered it in pastures, mixed lowland forests, and partially secondgrowth kauri forests, from sealevel to 335 m. altitude, flowering in April, July, and August, in fruit in February, April, and August. The corollas are said to have been "pink" on Moran 2447, "dull-red" on Schweinfurth 1136, and "rich cyclamen pink" on Collector undetermined s.n.

It should be noted that in the index to Metcalf's (1972) work listed in the bibliography (above) it is stated that the species is mentioned on page "273", but this is an error for p. 274.

The Judd s.n. [Dec. 1, 1930], distributed as *V. lucens*, actually is *V. peduncularis* Wall.

Additional citations: NEW ZEALAND: North: Banks & Solander s.n. [Cook's First Voyage, 1768--71] (W--1276430); Byrne s.n. [11/7/52] (Kh); J. H. Davis s.n. [14 Aug. 1950] (W--2037559); Hügel s.n. (Mu--1348); Kirk 304 (W--809121), s.n. [Kaipara] (W--74071);

Meebold 4972 (Ba, Mu, Z), 9924 (Mu); *U. Schweinfurth* 1136 (Mu), 1185 (Mu), 1208 (Mu); *Travers s.n.* [Auckland, April 1909] (Mu--4145, Mu--4255); *Védel s.n.* [1847] (W--74069); *E. H. Walker* 4248 (W--1993730), 5312 (W--1994481); *Wijkes s.n.* [Bay of Islands] (W--74070); *A. E. Wright s.n.* [7 January 1976] (Ac). CULTIVATED: California: Collector undetermined *s.n.* (Sd--54850); *Jerabek s. n.* [Balboa Park, May 1945] (Sd--36322), *s.n.* [Balboa Park, June 1945] (Sd--36462); *Mathias* 2564 (Ba); *R. V. Moran* 2447 (Ba), 14721 (Sd--51439); *Nafie, Reynolds, & McClintock* 178 (Ba).

VITEX LUNDENSIS Gürke

Additional & emended bibliography: *J. G. Baker* in *Thiselt.-Dyer, Fl. Trop. Afr.* 5: 317 & 327--328. 1900; *Mold., Phytologia* 15: 256. 1967; *Mold., Fifth Summ.* 1: 232 (1971) and 2: 926. 1971.

VITEX LUTEA Exell

Additional bibliography: *Mold., Phytologia* 15: 256--257. 1967; *Mold., Fifth Summ.* 1: 227 (1971) and 2: 926. 1971.

The type specimen of this species, photographed by the Missouri Botanical Garden as its photograph A.858, is deposited in the herbarium of the British Museum (Natural History) in London.

Additional citations: ANGOLA: Kongo: *Gossweiler* 7250 [Mo. Bot. Gard. photo A.858] (Gz--photo of type, N--photo of type).

VITEX LUTEOLANDULOSA H. J. Lam

Additional bibliography: *H. J. Lam* in *Lam & Bakh.*, *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 49. 1921; *Fedde & Schust.*, *Justs Bot. Jahresber.* 47 (2): 246 (1929) and 60 (2): 576. 1941; *Mold., Phytologia* 15: 257. 1967; *Mold., Fifth Summ.* 1: 338 (1971) and 2: 926. 1971.

VITEX LUZONICA H. J. Lam

Additional bibliography: *H. J. Lam* in *Lam & Bakh.*, *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 50. 1921; *Fedde & Schust.*, *Justs Bot. Jahresber.* 53 (1): 1077. 1932; *Mold., Phytologia* 15: 257. 1967; *Mold., Fifth Summ.* 1: 318 (1971) and 2: 926. 1971.

VITEX MACROFOLIOLA Mold.

Additional bibliography: *H. J. Lam* in *Lam & Bakh.*, *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 50. 1921; *Fedde & Schust.*, *Justs Bot. Jahresber.* 47 (2): 246 (1927) and 60 (2): 576. 1941; *Mold., Phytologia* 15: 257. 1967; *Mold., Fifth Summ.* 1: 338 (1971) and 2: 721 & 926. 1971.

VITEX MADAGASCARIENSIS Mold.

Additional bibliography: *Mold., Phytologia* 15: 257. 1967; *Mold., Fifth Summ.* 1: 263 (1971) and 2: 926. 1971.

VITEX MADIENSIS Oliv.

Additional & emended bibliography: *Gürke* in *Engl., Pflanzenw. Ost-Afr.* C: 339. 1895; *Durand & DeWild.*, *Bull. Soc. Roy. Bot. Belg.* 37: 124. 1898; *J. G. Baker* in *Thiselt.-Dyer, Fl. Trop. Afr.*

5: 316 & 322--324. 1900; Pobéguin, Pl. Méd. Guin. 339--340. 1906; Volkens, Notizbl. Bot. Gart. Berlin 5, App. 22 (2): 34--35. 1909; Fedde & Schust., Justs Bot. Jahresber. 43: 159. 1922; Pellegrin, Mem. Soc. Linn. Normand. 26 [ser. 2, 1 (3)]: 50. 1928; Pellegrin, Fl. Mayombe 2: 50. 1928; Good & Exell, Journ. Bot. Lond. 68: Suppl. 143--144. 1930; Exell, Journ. Bot. Lond. 69, Suppl. 2: 145. 1931; Hutchins. & Dalz., Fl. W. Afr., ed. 1, 2: 276. 1931; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; Glover, Prov. Check List Brit. Ital. Somal. 268. 1947; H. N. & A. L. Mold., Pl. Life 2: 50 & 62. 1948; Boaler, Journ. Ecol. Brit. 54: 467. 1966; Bouquet, Invent. Pl. Méd. Tox. Cong. Braz. 33. 1967; Bouquet, Méd. Trop. 28: 49--58. 1968; Cohic, Cah. Off. Rech. Sci. Tech. Outre-Mer Biol. 6: 113. 1968; Mold., Phytologia 17: 10 & 24. 1968; Mold., Résumé Suppl. 16: 8 (1968) and 17: 13. 1968; Richards & Morony, Check List Fl. Mbalala 239. 1969; Adam, Journ. Agr. Trop. Bot. Appl. 17: 414--415. 1970; Drar, Publ. Cairo Univ. Herb. 3: 111. 1970; Farnsworth, Pharmacog. Titles 5 (10): xxiv & item 11360 (1970) and 5: Cum. Gen. Ind. 1971; Mold., Fifth Summ. 1: 210, 211, 217, 224, 226, 227, 232, 234, & 245 (1971) and 2: 714, 721--723, 726, & 926. 1971; Gray & DeZeeuw, IAWA Bull. 1974 (2): 25, fig. 3. 1974; Leith, Phenol. Season. Model. 444. 1974; Malaise in Leith, Phenol. Season. Model. 276. 1974; Mold., Phytologia 28: 442. 1974; Mound & Halsey, Whitefly World 98. 1978; Mold., Phytologia 44: 479--481. 1979.

Additional illustrations: Gray & DeZeeuw, IAWA Bull. 1974 (2): fig. 3. 1974.

Drar (1970) cites his nos. 138, 1433, & 1503 from Sudan; Pellegrin (1928) cites L.T. 1079 from Mayombe where he found the plant to be a shrub, 1.5 m. tall, more or less stunted by the annual brush fires, growing on savannas, with "violet" colored flowers in August. Good & Exell (1930) cite their no. 1051 from open *Combretum* forests in Angola. Pobéguin (1906) cites his no. 169 from Guinea, where he found the species as a tree, 6--8 m. tall, producing "pale-blue" flowers. Hutchinson & Dalziel (1931) cite only Chevalier 12467 from French Sudan, but list the species also from French Guinea, Zaire, and Angola. Glover (1947) regards *V. schweinfurthii* Gürke as synonymous with typical *V. madiensis*, but I regard it as representing a variety, var. *schweinfurthii* (Gürke) Pieper, which see.

Recent collectors describe typical *V. madiensis* as a subshrub or treelet, 1--3 m. tall, the branches more or less horizontal, the leaves papery, pale-green, glossy above, and have encountered it on savannas, at 500--800 m. altitude, in flower in April and in fruit in July. The corollas are said to have been "mauve" on Evrard 6446 and "whitish" on Breteler 1089.

Vernacular names reported for the species include "atyugé", "bolobé", "budèg", "bugnign", "bumi", "buniau-a", "dákélékélé", "dobolé", "gitiogné", "kebôké", "kodo nfi", "kuru kudulé", "kutofioho", "kutufingo", "kutundimô", "kutuni", "kutusumâgo", "lugh", "mâb", "mamb", "sêno", "sibuhô", "simbôhô", "simbô u sêno", and "tcimboô".

Cohic (1968) reports that *V. madiensis* is host to the whitefly,

Aleurodes milletiae Cohic in Congo Brazzaville.

It should be noted that the G. F. Meyer photographs of Welwitsch collections in the British Museum (Natural History) herbarium are actually not photographs of the real type collection (Grant 2) of the species in that herbarium.

The Liben 1926, distributed as *V. madiensis*, actually represents *V. buchneri* Gürke, while *Gossweiler* 14109 is *V. doniana* Sweet and *Drar & Mahdi* 138 is *V. doniana* var. *parvifolia* (Engl.) Mold.

Additional citations: SUDAN: Bahr El Ghazal: *Drar & Mahdi* 1433 (Gz), 1503 (Gz). CAMEROONS: *Breteeler* 1089 (Mu). ZAIRE: *Carlier* 217 (Mu); *Evrard* 6446 (E--2044616). ANGOLA: *Welwitsch* 5713 [F. G. Meyer photo 2990a] (Gz--photo, N--photo).

VITEX MADIENSIS var. *ANGUSTIFOLIA* Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; Mold., Phytologia 15: 258. 1967; Mold., Fifth Summ. 1: 211 (1971) and 2: 926. 1971.

VITEX MADIENSIS var. *AROMATICA* Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403. 1938; Mold., Phytologia 15: 258. 1967; Mold., Fifth Summ. 1: 218 & 234 (1971) and 2: 728 & 926. 1971.

VITEX MADIENSIS var. *BAUMII* Pieper

Additional bibliography: Fedde & Schust., Justs. Bot. Jahresber. 57 (2): 403. 1938; Mold., Phytologia 17: 10. 1968; Mold., Fifth Summ. 1: 232 & 245 (1971) and 2: 714 & 926. 1971; Mold., Phytologia 44: 393. 1979.

VITEX MADIENSIS var. *DARBANDENSIS* A. Chev.

Additional bibliography: Mold., Phytologia 15: 259. 1967; Mold., Fifth Summ. 1: 226 (1971) and 2: 926. 1971.

VITEX MADIENSIS var. *GLABERRIMA* Mold.

Additional bibliography: Mold., Phytologia 15: 259. 1967; Mold., Fifth Summ. 1: 232 (1971) and 2: 926. 1971.

VITEX MADIENSIS var. *GOSSWEILERI* Pieper

Additional bibliography: Good & Exell, Journ. Bot. Lond. 68: Suppl. 144. 1930; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403. 1938; Mold., Phytologia 15: 259. 1967; Mold., Fifth Summ. 1: 242, 245, 247, & 250 (1971) and 2: 926. 1971.

Good & Exell (1930) cite *Gossweiler* 1062 & 1065 from "in primary thickets formed of *Combretum*, *Diplorhynchus*, etc." in Angola, and report the vernacular name, "muxiluxillu".

VITEX MADIENSIS var. *MILANJIENSIS* (Britten) Pieper

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 317 & 330. 1900; Fedde & Schust., Justs Bot. Jahresber. 42: 252. 1920; Good & Exell, Journ. Bot. Lond. 68: Suppl. 144. 1930; Fedde & Schust., Justs Bot. Jahresber. 57

(2): 402. 1938; Boaler, Journ. Ecol. Brit. 54: 467. 1966; Mold., Phytologia 17: 10. 1968; Mold., Résumé Suppl. 16: 8 (1968) and 17: 13. 1968; Richards & Morony, Check List Fl. Mbala 239. 1969; Mold., Fifth Summ. 1: 232, 233, 238, 245, 247, 250, & 252 (1971) and 2: 722, 727, & 926. 1971; Lewalle, Bull. Jard. Nat. Belg. 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.29]: 39, 41, 81, 82, 102, & [231]. 1972; Mold., Phytologia 44: 481. 1979.

Recent collectors describe this plant as a tall shrub or tree, 3--20 feet tall, the fruit green when young, black when mature, and have found it growing in rocky sandy ground in woodlands, in riverine tropophile forests and open forests, along streamsides and roadsides, and on ant-hills, at 1100--1850 m. altitude, flowering in October and fruiting in February. The vernacular name, "mufulu", has been reported for it.

Lewalle (1972) cites his no. 403, while Richards & Morony (1969) cite D.B.D. 6353 and M.R. 739, 1388, 2178, 11505, & 19532 from Mbala. Good & Exell (1930) cite Gossweiler 1066 from Angola.

The Reekmans 1391 & 2204, distributed as *V. madiensis* var. *mili-*
anjiensis, actually are *V. epidictyodes* Mildbr., while Callens
3072 & 3300 are *V. hockii* DeWild.

Additional citations: ZAIRE: Schmitz 368 (E--2168608), OBS.
558-1247 (Mu). TANZANIA: Tanganyika: Carnochan 58 (W--2091728).
ZAMBIA: Richards 21425 (E--1836221).

VITEX MADIENSIS var. *NIVEA* A. Chev.

Additional bibliography: Mold., Phytologia 15: 260. 1967;
Mold., Fifth Summ. 1: 226 (1971) and 2: 927. 1971.

VITEX MADIENSIS var. *SCHWEINFURTHII* (Gürke) Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403. 1938; Glover, Prov. Check List Brit. Ital. Somal. 268. 1947; Mold., Phytologia 15: 260. 1967; Mold., Fifth Summ. 1: 211, 224, & 232 (1971) and 2: 727 & 927. 1971; Mold., Phytologia 28: 442. 1974.

The Drar & Mahdi collection cited below is very similar to *V. simplicifolia* Oliv.; it exhibits leaves with 1 or 3 leaflets and these are basally truncate and very pubescent beneath.

Additional citations: SUDAN: Kordofan: Drar & Mahdi 1922 (Gz, Gz, Gz).

VITEX MARANHANA Mold.

Additional bibliography: Mold., Phytologia 15: 260. 1967;
Mold., Fifth Summ. 1: 179 (1971) and 2: 927. 1971.

See under *V. megapotamica* var. *multinervis* (Cham.) Mold. in the present series of notes for discussion of the possibility that the *V. multinervis* referred to by Peckolt in Bericht. Deutsch. Pharm. Gesel. 14: 481 (1904) may actually be a misidentification of *V. maranhana*.

VITEX MARQUESII Pieper

Additional bibliography: Wangerin, Justs Bot. Jahresber. 56

(1): 669. 1936; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 404. 1938; Mold., Phytologia 15: 260. 1967; Mold., Fifth Summ. 1: 245 (1971) and 2: 927. 1971.

VITEX MARTII Mold.

Additional bibliography: Mold., Phytologia 15: 260. 1967; Mold., Fifth Summ. 1: 179 (1971) and 2: 927. 1971.

VITEX MASONIANA Pittier

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 44: 254. 1922; Pittier, Contrib. U. S. Nat. Herb. 20: 484. 1922; Mold., Phytologia 17: 10--11. 1968; Mold., Résumé Suppl. 16: 4 & 5. 1968; Mold., Fifth Summ. 1: 92 & 121 (1971) and 2: 722 & 927. 1971; Mold. in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 131--134 & 148, fig. 14. 1973; Mold., Phytologia 28: 433. 1974; López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 33. 1979.

Additional illustrations: Mold. in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 133, fig. 14. 1973.

Recent collectors describe this species as a tree, 100--150 feet tall, the trunk diameter 24--34 inches at breast height, with a widely spreading crown, and have encountered it at 100 m. altitude, flowering in February, June, and July. The corollas are said to have been "blue" on Duke 9784, "white" on Duke 8387, and "pale-purple, central lobe of lower lip purple, yellow at throat, other lobes white to lavender, anthers black, filaments white" on Stern & al. 958. Duke reports the vernacular name, "cuajado", and comments that the species is not used in any way by the native Chocoi Amerinds.

Additional citations: PANAMA: Chocó: Duke 9784 (N). Darién: Duke 8387 (W--2572278); Stern, Chambers, Dwyer, & Ebinger 958 (E--1757561). COLOMBIA: Chocó: A. Gentry 9327 (W--2788819).

VITEX MEDUSAECALYX H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 59. 1921.

Synonymy: *Vitex nadusacalyx* H. J. Lam ex Mold., Fifth Summ. 1: 723, in syn. 1971.

Additional & emended bibliography: H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 50 & 59. 1921; Fedde & Schust., Justs Bot. Jahresber. 53 (1: 1076. 1932; Mold., Phytologia 15: 260--261. 1967; Mold., Fifth Summ. 1: 328 (1971) and 2: 723 & 927. 1971.

Van Steenis encountered this species at 1000 m. altitude, flowering in March.

Additional citations: GREATER SUNDA ISLANDS: Sumatra: Van Steenis 9427 (N).

VITEX MEGAPOTAMICA (Spreng.) Mold.

Additional synonymy: *Vitex montividensis* Cham. ex Peckolt, Bericht. Deutsch. Pharm. Gesel. 14: 481, sphalm. 1904. *Vitex tarumā* Cham. apud Freise, Bol. Agricult. São Paulo 34: 319. 1933.

Vitex megapotamicus Lombardo, Fl. Arb. Arbores. Urug., ed. 2, 124, fig. 196, sphalm. 1964. *Vitex mefapotamica* Rimpler apud Farnsworth, Pharmacog. Titles 6 (4): item 7195, sphalm. 1971.

Additional & emended bibliography: D. Dietr., Syn. Pl. 3: 612. 1843; Schau. in A. DC., Prodr. 11: 688--689. 1847; Schnitzl., Icon. Fam. Nat. 2: 137 Verbenac. [2]. 1856; Buek, Gen. Spec. Syn. Candoll. 3: 502. 1858; Gibert, Enum. Pl. Montev. 45. 1873; Peckolt, Bericht. Deutsch. Pharm. Gesel. 14: 481. 1904; Venturi & Lillo, Contrib. Conoc. Arb. Argent. 104. 1910; Kirtikar & Basu, Indian Med. Pl., ed. 1, 1936. 1918; Freise, Bol. Agric. São Paulo 34: 319--320 & 494. 1933; Fedde & Schust., Justs Bot. Jahrsber. 60 (2): 576. 1941; Barroso, Rodriguésia 32: 72. 1957; Hansford, Sydowia 10: 66. 1957; Cain, Man. Veg. Anal., imp. 1, 226. 1959; Veloso & Klein, Sellowia 10: 99 & 105. 1959; Hansford, Sydowia Beih. 2: 696. 1961; Reitz, Sellowia 13: 64 & 110. 1961; Willaman & Schubert, Agr. Res. Serv. U. S. Dept. Agr. Tech. Bull. 1234: 237. 1961; Rizzini in Ferré, Simpos. Cerrado 116. 1962; Veloso & Klein, Sellowia 15: 45, 47, 50, 51, & 107. 1963; Martínez-Crovetto, Bonplandia 1: 177 & 98. 1963; Lombardo, Fl. Arb. Arbores. Urug., ed. 2, 124, fig. 196. 1964; Reitz & Klein, Sellowia 16: 41 & 83. 1964; Angely, Fl. Anal. Paran., ed. 1, 580. 1965; Griff & Hyland, U. S. Dept. Agr. Pl. Invent. 166: 196. 1966; Langhammer, Excerpt. Bot. A.14: 473. 1969; Rimpler, Deutsch. Apoth.-Zeit. 107: 391 & 1413. 1967; Rimpler & Schulz, Tetrahed. Lett. 22: 2033--2035 & 5139. 1967; R. E. Alston in Mabry, Recent Adv. Phytochem. 1: 311. 1968; Hyland, U. S. Dept. Agr. Pl. Invent. 172: 247. 1968; Mold., Phytologia 17: 11. 1968; Mold., Résumé Suppl. 16: 6 & 29. 1968; Veloso & Klein, Sellowia 20: 82, 122, 147, & 177. 1968; Rimpler, Deutsch. Apoth.-Zeit. 109: 391. 1969; Rimpler, Tetrahed. Lett. 21: 329--333. 1969; Anon., Biores. Index 6: 1366, 1372, & 4087--4088. 1970; Herout in Reinhold & Liwschitz, Prof. Phytochem. 2: 183 & 189. 1970; H. & Y. Hikino, Prog. Chem. Org. Nat. Prod. 28: 256--312. 1970; Reitz, Sellowia 22: 147. 1970; Siddall in Sonheimer & Simeone, Chem. Ecol. 294. 1970; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo, ed. 1, 4: 828 & xix, map 1372. 1971; Cain, Man. Veg. Anal., imp. 2, 226. 1971; Farnsworth, Pharmacog. Titles 6 (4): xv & item 7195. 1971; Huneck, Excerpt. Bot. A.18: 34. 1971; Mold., Fifth Summ. 1: 179, 188, 190, 203, 374, & 396 (1971) and 2: 614, 722, 723, 728, 731, & 927. 1971; Klein, Sellowia 24: 44 & 61. 1972; Rimpler, Arch. Pharm. 305: 746--751. 1972; Souza So-brinho, Insula 6: 7 & 17. 1972; Anon., Biol. Abstr. 55 (10): B.A. S.I.C. S.272. 1973; Farnsworth, Pharmacog. Titles 8: 219 (1973). 8 (2): xx (1973), and 6: Cum. Gen. Ind. [122]. 1973; Heftmann in L. P. Mill., Phytochem. 2: 178 & 180. 1973; Hegnauer, Chemotax. Pf1. 6 [Chem. Reihe 21]: 663, 665, 673, & 681. 1973; Mold., Phytologia 25: 230 (1973) and 28: 452. 1974; Troncoso, Darwiniana 18: 394, 395, & 412, fig. 35. 1974; Mold., Phytologia 31: 412 (1975), 36: 48 (1977), and 39: 424. 1978; Reitz, Klein, & Reis, Proj. Madeira S. Catar. 42 & 86.. 1978; Hocking, Excerpt. Bot. A.33: 88. 1979; Mold., Phytologia 44: 398 & 412. 1979; Troncoso in Burkart, Fl. Ilustr. Entre Ríos 5: 292--294, fig. 138. 1979.

Additional illustrations: Lombardo, Fl. Arb. Arbores. Urug., ed. 2, 124, fig. 196. 1964; Troncoso, Darwiniana 18: 394, fig. 35. 1974; Troncoso in Burkart, Fl. Ilustr. Entre Ríos 5: 293, fig. 138. 1979.

Troncoso (1979) states that the wood of this species is "dura ...muy apreciada, se utiliza para postes, tablillas de techo, etc. Su fruto da una especie de aceite y según varios autores es comestible". She records the vernacular names, "tarumá", "tarumá duro", "tarumá sin espinas", and "tarumán de ley" and cites *Collector undetermined* 44 from Corrientes, Argentina, *Niederlein* 1810 from Misiones, *Herter* 88856 & 94042 from Uruguay, and *Pedersen* 5222 from Paraguay, all deposited in the San Isidro herbarium. Latzine (1937) and Devoto & Rothkugel (1942) list it from Entre Ríos, Argentina, as, of course, does Troncoso (1979).

Recent collectors describe the plant as a shrub, 1 m. tall, or a small slender tree, 2--20 m. tall, the flowers sweet-scented, and the immature fruit "wine-color", the size and color of a cherry when mature. They have found it growing in restinga, at the edge of woods, in wet or gallery forests along rivers, in primeval, pluvial, and Araucaria forests, from 5--750 m. altitude, in flower from October to March, and in fruit from December to February. Herter refers to it as the "echter [true] Tarumá".

The corollas are said to have been "blue" on *Hatschbach* 28422, *Krapovickas* & al. 16810, and *Schwarz* 5133, "anil" on *Hatschbach* & *Koczicki* 15363 & 27240, "sky-blue" on *Lourteig* 2073, "lilac" on *Hatschbach* 23206 & 39310 and *Jorgensen* 3786, "pale-lilac" on *Hatschbach* 25936, "blue-violet" on *Schinini* & *Carnevali* 10591, "rose" or "rosy" on *Herter* 1392b, *Klein* 106 & 151, and *Reitz* & *Klein* 131, "pale-violet" on *Pedersen* 5222, "pinkish-white" on *Reitz* & *Klein* 5968, "white and rose" on *Reitz* & *Klein* 7613, "lavender and white" on *MacIntyre s.n.*, "blue at base, petals pale yellowish-white" on *Maruñak* 193, and "amarela" on *Gevieski* 54.

Reitz & *Klein* 7613 was collected as voucher for a wood collection; a strip of bark accompanies *Fiebrig* 5382.

Peckolt (1904) asserts that this species occurs only between 12° and 33° S. latitude in Brazil and lists the vernacular names, "tarumá do banhado" and "turumá". He describes the corolla as violet in color and the calyx as purple-red; "Nach Löfgren werden in S. Paulo die Früchte von den Fischern als Köder zum Angeln der Fische Lambari (*Tetragonopterus dichrourus*) und Tobarána (*Salminius Cuvierii*) benutzt. Das Dekokt der Blätter hat den Ruf, als die Harnsteine lösend zu wirken. Nach Martius ist die Rinde heilkraftig bei syphilitischen atonischen Affektionen. Das weisse dauerhafte Holz dient zu verschiedenen Gerätschaften."

Venturi & *Lillo* (1910) say that "A orillas de los arroyos [in Argentina] encuéntrarse esta especie común; la madera de color rojizo, veteada, dura, es muy buena y apreciada. La corteza es frágil y estriada parecida á la del 'Mata-Ojos'. Como se conserva mucho en la humedad es utilizado para hornos, postes, etc. y siendo fácil de rajar es empleado para tabillas de techo. La fruta da

una especie de aceite y la misma madera aún después se seca, siendo enterrada vuelve á sudar el aceite y parece que nuevamente se pone verde." Freise (1933) describes its uses as follows: "folhas; usadas como diuretico e depurativo so sangue, empregando-se o infuso dellas na dose de 5 grms. de folhas por 200 grms. d' agua em fervura, para 3 ou 4 chicaras diárias. Das folhas conhece-se um oleo essencial (0,25--0,35% Freise) que tem um cheiro muito característico (lembrando pão preto fresco e humido ainda), um peso esp. (15° C.) de 0,905 e um sabor acre-picante; algumas dos componentes deste oleo são Pinena, Camphene e Cineol. O embrão da semente contem um alcaloide inebriante." Rimpler (1967, 1972), Rimpler & Schulz (1967), Langhammer (1969), and Heftmann (1973) have isolated the following chemicals in *Vitex megapotamica*: viticosterone (a phyto-sterone), crustecdysone, inokosteron, pterosteron, polypodin B, viticosteron E, β -ecdysone, phytoecdysone, ecdysen, iridoide, and ecdysterone.

Hansford (1961) reports the species as host to the fungus, *Meliola cantareirensis* Hansf. in Brazil, based on Puttemans 202.

Souza Sobrinho (1972) records the species from Santa Catarina island. Hyland (1968) lists it as cultivated in Maryland, grown from seed of U. S. Plant Inventory no. 300985, imported from Argentina in 1964. Seed of Ll. Williams 18555 from São Paulo, Brazil, was cultivated in Maryland, where it grew into a tree, 15 feet tall, with a flat crown.

Cain (1959) describes *V. megapotamica* as a "mesophanerophyte microphyll". Barroso (1957) reports it from Bahia, Minas Gerais, and Rio de Janeiro, Brazil, citing Barroso 85 and RB.24280 & 66525, from 900 m. altitude.

Troncoso (1974) cites only Herter 94042 from Uruguay and Rodriguez 53 from Misiones, Argentina, deposited in the San Isidro herbarium.

It should be noted that the Angely (1971) reference cited in the bibliography (above) is sometimes cited as published in "1970", the title-page date, but the work was not actually published until 1971.

Material of *V. megapotamica* has been misidentified and distributed in some herbaria as *V. cymosa* Bert. On the other hand, the Collector undetermined 15 and Senaratna 193, distributed as *V. megapotamica*, actually represent *V. capitata* Vahl, while the following collections, distributed as - and in some cases cited by me in previous installments of these notes as - typical *V. megapotamica*, actually represent the newly recognized var. *multinervis* (Cham.) Mold.: Burchell 4250, Burkart 18318, Dusén 16165, Gruner 413, Hassler 12307a, Hatschbach 39782, Herb. Barb. Rodr. 10069, Herb. Inst. Bot. S. Paulo 869, 1188, 15600, 19446, & 50353, Herb. Mus. Nac. Rio Jan. 5994, Herb. Serv. Florest. Comp. Paul. Estr. Ferro 109, Hoehne 659 & 869, Klein 1852 & 1858, Lindeman & Haas 4718, Macbride photos 17563, Montes 1548 & 7115, Moreira 42, Mosen 642 & 4324, Pickel 353, Rambo 29358, Regnell I.38, I.38b, & I.583, Reitz & Klein 1858, 3009, & 6409, Rodriguez 53, Roth 840, A. G. Schulz 7151, Smith & Klein 8027, 8284, & 11928, Ule 1065, and Usteri 1. Reitz 3226 is *V. megapotamica* f. *albiflora* Mold.

Additional citations: BRAZIL: Minas Gerais: Riedel & Lund 0, 3 (N); Widgren s.n. [Caldas 1845] (Mu--1521). Paraná: Dusen 7262 (Mu), 7426 (Mu); Hatschbach 23206 (Mi), 25936 (Ld), 28422 (Ld), 39310 (Ld), 41099 (N). Hatschbach & Haas 15809 (Ft). Rio Grande do Sul: Herb. Kummer s.n. (Mu--1349); Krapovickas, Cristobal, & Quarín 22900 (Ld); Pabst 6392 [Pereira 6565; Herb. Brad. 22517] (Mu); Palacios & Cuezzo 526 (N); Rambo 49156 (Bl--64890); Richter 961 [Herb. Brad. 7896] (Mu). Santa Catarina: Gevieski 54 [Herb. Barb. Rodr. 8382] (W--2220119); Hatschbach & Koczicki 27240 (Ld, N); Reitz & Klein 131 (W--2141537), 5968 (W--2282014), 7613 (W--2403325, Ws); Smith & Klein 10685 (W--2251706), 13185 (Au--249872, W--2573680, Ws), 13222 (W--2573691), 14164 (N, W--2573693). PARAGUAY: Fiebrig 5382 (Mu--4254); Hassler 9640 (Ws), 11417 (E--1574728, W--2055484); Lourteig 2073 (N, S, W--2547654). URUGUAY: Herter 1392 [Herb. Herter 88856] (Mu). ARGENTINA: Corrientes: Krapovickas, Cristóbal, Arbo, Maruñak, Maruñak, & Iri-goyen 16810 (Ld, Ws); Schinini & Carnevali 10591 (Ld). Misiones: Krapovickas, Cristóbal, & Maruñak 23389 (Ld); V. Maruñak 193 (Ld, Ws); G. J. Schwarz 5133 (N). Salta: T. Rojas 11477 (N). CULTIVATED: Egypt: V. Täckholm s.n. [10/6/1960] (Gz); Täckholm & Elsayed s.n. [15/5/1961] (Gz, Gz), s.n. [23/6/1961] (Gz, Gz, Gz), s.n. [22/11/1961] (Gz, Gz). LOCALITY OF COLLECTION UNDETERMINED: Kreuzpointner s.n. [Januar 1897] (Mu--3744, Mu--3745).

VITEX MEGAPOTAMICA f. ALBIFLORA Mold.

Additional bibliography: Mold., Phytologia 17: 11. 1968; Mold., Résumé Suppl. 16: 6. 1968; Mold., Fifth Summ. 1: 179 & 374 (1971) and 2: 927. 1971.

Reitz refers to this plant as a tree, 8 m. tall, the "fruto preto-pequeno", and encountered it in capoeira. at 50 m., altitude, flowering and fruiting in December, called locally "tarumão".

Material of this form has almost uniformly been identified as and distributed in herbaria as typical *V. megapotamica* (Spreng.) Mold. On the other hand, the Klein 2707, distributed as and previously erroneously cited by me as this form, actually is not verbenaceous.

Additional citations: BRAZIL: Paraná: Hatschbach 13392 (Ld). Santa Catarina: Reitz 3226 [Herb. Barb. Rodr. 5939] (W--2141641).

VITEX MEGAPOTAMICA var. MULTINERVIS (Cham.) Mold., Phytologia 39: 424. 1978.

Synonymy: *Vitex montevidensis* ? var. *multinervis* Cham., Linnaea 7: 374. 1832. *Psilogyne viticifolia* A. DC., Rev. Fam. Bignon. 16. 1838. *Vitex multinervis* (Cham.) Schau. in A. DC., Prod. 11: 688. 1847. *Vitex montevidensis multinervis* Cham. apud Buek, Gen. Spec. Syn. Candoll. 3: 502, in syn. 1858. *Vitex multinervis* Schau. apud Buek, Gen. Spec. Syn. Candoll. 3: 502. 1858. *Vitex viticifolia* (A. DC.) B. L. Robinson, Proc. Amer. Acad. 51: 531. 1916. *Vitex montevidensis* var. *multinervis* Cham. ex Mold., Prelim. Alph. List Inv. Names 51, in syn. 1940.

Bibliography: Cham., Linnaea 7: 374. 1832; A. DC., Rev. Fam. Bignon. 16. 1838; Schau. in A. DC., Prodr. 11: 688. 1847; Schau. in Mart., Fl. Bras. 9: 297. 1851; Buek, Gen. Spec. Syn. Candolle. 3: 502. 1858; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1214. 1895; Peckolt, Bericht. Deutsch. Pharm. Gesel. 14: 481. 1904; B. L. Robinson, Proc. Amer. Acad. 51: 531. 1916; Mold., Prelim. Alph. List Inv. Names 39, 51, & 52. 1940; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 576. 1941; Mold., Alph. List Inv. Names 39, 54, & 55. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 1214. 1946; Mold., Phytologia 5: 464. 1956; Mold., Résumé 341, 386, & 391. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 1214. 1960; Mold., Phytologia 15: 261. 1967; Mold., Fifth Summ. 2: 614, 722, 723, & 731. 1971; Troncoso, Darwiniana 18: 395 & 412. 1974; Mold., Phytologia 39: 424. 1978; Hocking, Excerpt. Bot. A.33: 88. 1979.

This rather inconstant variety is based on Sellow s.n. from somewhere in Brazil, photographed by Macbride as his type photograph number 17563. It differs from the typical form of the species in its leaf-blades being more regularly tapering-acute apically and the secondaries more numerous, straighter, and closer together. Similar leaflets can, however, occasionally be found among the ordinary type in the typical form of the species. In the variety such leaves are more numerous and more constant proportionally. Many of the specimens cited below were previously cited by me and annotated as typical *V. megapotamica* before the validity of this variety was established.

Recent collectors describe the plant as a tree or treelet, 4--15 m. tall, the trunk 30--35 cm. in diameter at breast height, the fruit green when immature, becoming wine-color, red, dark-red, or even black when mature and then about 1.5 cm. in diameter. They have encountered it in woods and forests, at the edges of woods, in primeval, residual, and gallery forests, at the margins of virgin forests, in meadows, monte, mata, pinheira, mato branco without Araucaria, capoeira, and dry campo, at altitudes of 300--1000 m., flowering in November and December, in fruit in September, November, and from February to April. The corollas are said to have been "lilac" on *Smith & Klein* 1858, "violet" on *Burkart* 18318, "alvo, fauce arroxead" on *Hoehne* 869, and "cremoso-morado" on *Montes* 7115.

Vernacular names reported for the variety are "bracuhy", "bracuí", "bracuy", "guabiropa brava", "tarumá", "tarumá blanco", "taruman", "táruman", and "tatuman".

Peckolt (1904) asserts that this is a more northern form of the species, found "In den Staaten [of Brazil] vom 7. bis zum 27.° südl....vorkommend mit den Volksnamen Maria preta de campina -- Schwarze Marienfrucht der Wiesen in Alagoas, Salgueiro -- Weide in Pernambuco, Paó de cavallo -- Pferdebaum in den anderen Staaten. Ein bis 8 m hoher Baum. Blätter fünfsteilig, Blüten hellblau. Schwarze ovale Steinfrüchte von styptisch-süssem Geschmack, sie werden genossen. Das Holz dient zu Türen und Fensterladen." I am not at all certain that the plant he refers to here is really *V. megapotamica* var. *multinervis*; more likely it is *V. maran-*

hana Mold.

Material of this variety has been identified as and distributed in most herbaria as typical *V. megapotamica* (Spreng.) Mold. or as *V. cymosa* Bert. or *V. montevidensis* Cham.

Citations: BRAZIL: Mato Grosso: *F. C. Hoehne s.n.* [Herb. Inst. Bot. S. Paulo 19446] (N, Sp). Minas Gerais: *Mosén 642* (S, S, W--1323355), *4324* (N--photo, S, Z--photo); *Regnell 1.38* (W--1706589), *I.38b* (B, Br, F--998446, G, K, Mu--1520, P, P, S, S, Ut, V, Vu, W--274928), *I.583* (W--274927). Paraná: *Dusén 16165* (B, Cb, It, N, N--photo, N--photo, S, W--1481850, Z--photo, Z--photo), *s.n.* [Herb. Mus. Nac. Rio Jan. 5994] (N); *Hatschbach 39782* (N); *Lindeman & Haas 4718* (N, Ws); *Moreira 42* (W--2369335). Rio Grande do Sul: *Rambo 29358* (N); *Sellow s.n.* [Brasilia; Macbride photos 17563] (B--type, B--isotype, B--isotype, B--isotype, B--isotype, Br--isotype, Dc--isotype, F--66392--isotype, Kr--photo of type, N--photo of type, N--photo of type, P--isotype, Us--isotype, W--photo of type, X--isotype, Z--photo of type). Santa Catarina: *Klein 1858* (N, W--2220607, W--2220609, W--2281908); *Reitz & Klein 1858* [Herb. Barb. Rodr. 10069] (N), *3009* (N, N, Sm, W--2321115), *6409* (Sm, W--2268814); *Smith & Klein 8027* (N, N, Ok, W--2251333), *8284* (Ok, W--2251372), *11928* (Ok, W--2251837); *Ule 1065* (W--1323354). São Paulo: *F. C. Hoehne 659* (N), *s.n.* [Herb. Inst. Bot. S. Paulo 869] (A, Bm, N, N, P, Sp, W--1543126); *Pickel 353* (N); *Roth 840* [Herb. Inst. Bot. S. Paulo 50353] (N, Sp); *Usteri 1* (Mu--4051), *s.n.* [Herb. Inst. Bot. S. Paulo 15600] (It, N, Sp); *Vecchi s.n.* [Herb. Serv. Florest. Comp. Paul. Estr. Ferro 109; Herb. Inst. Bot. S. Paulo 1188] (It, N, N, Sp). State undetermined: *Burchell 4250* (K). PARAGUAY: *Hassler 12307a* (A, B, Bm, Cb, Cp, E--848244, Ed, G, K, Le, W--1057262). ARGENTINA: Misiones: *Gruner 413* (N); *Montes 1548* (N), *7115* (N); *Rodriguez 53* (N); *A. G. Schulz 7151* (N). CULTIVATED: Argentina: *Burkart 18318* (W--2595172).

VITEX MENABEENSIS Capuron, Adansonia, ser. 2, 12: 51--52. 1972.

Bibliography: Capuron, Adansonia, ser. 2, 12: 51--52. 1972; Aanon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1972: 56. 1973; Anon., Biol. Abstr. 55 (10): B.A.S.I.C. S.272. 1973; Mold., Phytologia 31: 389. 1975.

This species is endemic to Madagascar and is based on *Capuron 24571* from near Amboeny, Antsalova, in the Tsimeombo forest, Madagascar, collected in flower on March 30, 1966, and deposited in the Paris herbarium. The author cites also *Harmelin 10200* from the same locality and notes that the species seems closest to *V. barorum* Humbert, but "espèce dont il est tout à fait distinct".

VITEX MEXIAE Mold.

Additional & emended synonymy: *Vitex sellowiana* ♀ *parviflora* Schau. in A. DC., Prodr. 11: 690. 1847 [not *V. parviflora* A. L. Juss., 1806]. *Vitex selliana* ♀ *parviflora* Cham. ex Buek, Gen. Spec. Syn. Candoll. 3: 502, sphalm. 1858. *Vitex sellowiana* var. *parviflora* Schau. ex Mold., Prelim. Alph. List Inv. Names 52, in

syn. 1940.

Additional bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 501 & 502. 1858; Mold., Phytologia 15: 263. 1967; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo, ed. 1, 4: 828 & xix, map 1372. 1971; Mold., Fifth Summ. 1: 179 & 374 (1971) and 2: 714, 727, & 927. 1971; Mold., Phytologia 36: 48 (1977) and 44: 412. 1979.

Recent collectors describe this plant as a shrub, "to arborescent", 3 m. tall, with shreddy bark, and have found it in flower in November and in fruit in January. They report the vernacular name, "Maria preta". The corollas are said to have been "light-purple" on *Mexia* 5251 and this excellent collector refers to the species as "common".

The Angely (1971) reference in the bibliography (above) is often cited as "1970", the title-page date, but was not actually issued until 1971.

Material of *V. mexiae* has been misidentified and distributed in some herbaria as *V. cymosa* Bert.

Additional citations: BRAZIL: Minas Gerais: Irwin 2062 (Au--172813); *Mexia* 5251 (Ba), 5474 (Ba).

VITEX MICRANTHA Gürke

Additional synonymy: *Vitex micranthis* Gürke ex Mold., Phytologia 31: 412, in syn. 1975.

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 316 & 324. 1900; Bertin, Miss. Forest. Colon. Bois Côte Iv. 176. 1918; Pellegrin, Fl. Mayombe 2: 50. 1928; Pellegrin, Mem. Soc. Linn. Normand. 26 [ser. 2, 1 (2)]: 50. 1928; Irvine, Pl. Gold Coast 438. 1930; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 276 & 277. 1931; Aubréville, Ann. Acad. Sci. Colon. 9: 133 & 237. 1938; Mangenot & Mangenot, Bull. Jard. Bot. Brux. 27: 653. 1957; Hansford, Sydowia, ser. 2, Beih. 2: 695. 1961; Irvine, Woody Pl. Ghana 763. 1961; Gledhill, Check List Flow. Pl. Sierra Leone 30. 1962; Voorhoeve, Belmontia 8: 101. 1967; Mold., Phytologia 17: 11. 1968; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 717. 1969; Aubréville in Eyre, World Veget. Types 52. 1971; Fox, Trop. Ecol. 12: 20. 1971; Mold., Fifth Summ. 1: 218--222 & 224 (1971) and 2: 721 & 927. 1971; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 2, 717. 1974; Gray & DeZeeuw, IAWA Bull. 1974 (2): 25, fig. 1. 1974; Mold., Phytologia 31: 412 (1975) and 45: 487. 1980.

Illustrations: Gray & DeZeeuw, IAWA Bull. 1974 (2): fig. 1. 1974.

The Mangenots (1957) report the chromosome number for this species as 32. Hansford (1961) lists it as a host for the fungus, *Meliola cookeana* Speg., in Sierra Leone, based on Deighton 615 & 2234. Fox reports the species 97 percent susceptible to arsenic poisoning and 50 percent to hormone poisoning in the same country. Bertin (1918) lists the species from Ivory Coast.

Recent collectors refer to *V. micrantha* as a small tree, only 3.5--4 m. in height, or a tree, 25--75 feet tall, the trunk

2--3 inches in diameter at breast height, without buttresses, but with a slightly fluted bole. They have encountered it "in lignosisis residuis inter agros pessime cultos, ad marginem segestum", flowering from February to May, fruiting in April and December.

Dalziel (1937) reports that "Snakes are said to frequent the tree and to eat the fruit, accounting for the Liberian name ["sah-sah"], which means also a person with an evil reputation and maker of trouble.....The leaves are applied to cure craw-craw." He also notes that "The wood is whitish or light yellow-brown, the sapwood and heart not differentiated, fairly light and of medium texture, taking a good polish. It furnishes a useful timber, used locally for light construction work, but liable to insect attack and decay. In Sierra Leone Koran boards are made of it. In Liberia the stem is hollowed out to make drums." He also records the vernacular names, "andofiti", "djin-akwa", "feve", and "fevei". Baker (1900) cites only Cummins 74 and Mann 860 from Sierra Leone. Hutchinson & Dalziel (1936) cite Aylmer 46, Cooper 70, Cummins 74, Deighton 658, Lane-Poole 243, and Thomas 9064. Irvine (1961) also reports the use of the wood to make Koranic writing-boards in schools, drums, and heddles.

The Bernardi 8159, distributed as *V. micrantha*, actually represents *V. grandifolia* Gürke.

Additional citations: LIBERIA: J. T. Baldwin 6114 (W--2672605), 10531 (W--2673058), 11250 (W--2672452); G. P. Cooper 70 [Herb. Mus. Yale Sch. Forest. 13720] (W--1378350). IVORY COAST: Bernardi 8456 (E--1828048, Mu).

VITEX MICROPHYLLA Mold.

Additional bibliography: Mold., Phytologia 15: 264. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 927. 1971.

VITEX MILNEI Pieper

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 317 & 327. 1900; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403. 1938; Mold., Phytologia 15: 264. 1967; Mold., Fifth Summ. 1: 221 & 225 (1971) and 2: 715, 716, & 927. 1971; Mold., Phytologia 44: 475. 1979.

Baker (1900) cites only the type collection, Milne s.n., from Fernando Po.

VITEX MOLLIS H.B.K.

Additional & emended synonymy: *Vitex mollis* Humb. ex Spreng. in L., Syst. Veg., ed. 16, 2: 756. 1825. *Vitex mollis* Humb. & Kunth apud D. Dietr., Syn. Pl. 3: 611. 1843. *Vitex tomentosa* Pav. ex Mold., Prelim. Alph. List Inv. Names 52, in syn. 1940 [not *V. tomentosa* Rich., 1941, nor Wall., 1831].

Additional & emended bibliography: Spreng. in L., Syst. Veg., ed. 16, 2: 756. 1825; D. Dietr., Syn. Pl. 3: 611. 1843; Buek, Gen. Spec. Syn. Candolle. 3: 502. 1858; Sessé & Moc., Pl. Nov. Hisp., ed. 2, 96. 1893; H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 50 & 59--60. 1921; Pittier, Contrib. U. S. Nat. Herb. 20: 484. 1922; Fedde & Schust., Justs Bot. Jahresber.

53 (1): 1076. 1932; H. N. & A. L. Mold., Pl. Life 2: 44. 1948; Russell, Ann. Ent. Soc. Am. 56: 149--150. 1963; Neal, In Gard. Hawaii, ed. 2, 729--730. 1965; Rzedowski & McVaugh, Contrib. Univ. Mich. Herb. 9: 27, 38, 62, & 107. 1966; Aleman, Flores Mex. 15 (104): 12 & 19. 1968; Mold., Phytologia 17: 11--13, 28, 45, 47, 50, 54, & 56. 1968; Mold., Resumé Suppl. 16: 3. 1968; Palacios Ch., Anal. Esc. Nac. Cienc. Biol. 16: 89, pl. 35, fig. 282--284. 1968; Pennington & Sarukhan, Man. Ident. Arb. Trop. 372--373. 1968; Uphof, Dict. Econ. Pl., ed. 2, 545. 1968; M. Martinez, Pl. Med. Mex., ed. 5, 403. 1969; Mold., Fifth Summ. 1: 77, 374, & 471 (1971) and 2: 718--720, 722, 725, 728, 729, 771, & 927. 1971; Altschul, Drugs Foods 246. 1973; Farnsworth, Pharmacog. Titles 8 (10): xvii. 1973; Hinton & Rzedowski, Anal. Esc. Nac. Cienc. Biol. 21: 112. 1975; Mold., Phytologia 31: 336. 1975; Mound & Halsey, Whitefly World 207. 1978; Mold., Phytologia 44: 331. 1979.

Additional illustrations: Palacios Ch., Anal. Esc. Nac. Cienc. Biol. 16: pl. 35, fig. 282--284. 1968; Pennington & Sarukhan, Man. Ident. Arb. Trop. 372 & 373. 1968; M. Martinez, Pl. Med. Mex., ed. 5, 403. 1969.

Recent collectors describe this plant as a shrub, to 5 m. tall, or a large tree, 3--20 m. tall, much-branched, the trunk 40--50 cm. in diameter at breast height, the leaves grayish-downy, the flowers fragrant, "grouped in racemes", the fruit fleshy, at first green, then purple, and finally black. They have found it growing on igneous slopes with deciduous tropical woodland, in dry forests and much-disturbed cactus forests, in washes, on forested lava slopes with arborescent *Ipomoea* dominant, at the edges of short-thorn forests, in extensively farmed corn and sugarcane areas, and "entre arbustos leguminosos (huizaches) y matorrales", at altitudes of 33--1500 m., in flower from February to May and in October, in fruit from June to September.

Breedlove encountered the species on dry open slopes with *Ipomoea*, *Bursera*, *Quercus*, and *Lysiloma* in Sinaloa, Mexico; Hastings found it associated with *Quercus chihuahuensis*, *Bursera confusa*, *Erythrina flabelliformis*, and *Dodonaea viscosa* on rocky mountainsides in Sonora; the Andersons found it in oak woods with pines on the higher slopes and *Dodonaea* and *Lysiloma* on the lower. Johnston and his associates report it associated with *Bursera* and *Vitex pyramidata* in grassy and sandy soil made from extrusive igneous rocks in badly disturbed agricultural pastizal at pools and waterfalls along the edges of enormous barrancas in Jalisco. Littman & Pennington refer to it as the dominant species in low deciduous woods where it is "a frequent shrub" in Nayarit. Koch refers to it as "rare" in Jalisco, but Ventura calls it "abundant" in Michoacán.

The corollas are said to have been "blue" on Breedlove 19314, Koch 7485, Moran 4024, and Palacios s.n., "lilac" on Troll 615, "lavender" on Wiggins 13286, "purple" on Pérez & Hernández 852 and Rzedowski 22037, and "white outside, blue on lobes and in throat" on Anderson & Anderson 5845. Pennington & Sarukhán report the "Corteza pardo grisácea, finamente fisurada. Corteza interma crema, cambiando a verdosa. Corola: tubo blanco, limbo lila en la

superficie interior, mas pálido en la superficie exterior, tubo con bandas de lila en la superficie interior. Flores fragrantes."

Pennington reports that in Sonora the fruits are eaten and the roots are used in making a tea taken by women to alleviate menstrual pains. Altschul (1973) quotes Mexia to the effect that the fruit "is black with a pleasant acid taste, much eaten" and the bark is used as a remedy for fevers. Uphof (1968) repeats that the fruits are edible, 1--2 cm. in diameter, and eaten raw, "sold in markets in Mexico", and that both the leaves and fruits are there used to treat diarrhea. Pennington & Sarukhán (1968) assert that "No se conocen usos industriales de esta especie. El fruto es comestible." Martínez (1969) reports that the fruit "produce una mancha indeleble".

Vernacular names recently reported by collectors and writers include "agüilote", "angualama", "atuto", "atutu", "beu", "black coyote", "coyotomate", "cuyotomate", "huilote", "igualama", "negro coyote", "uvalama", and "valama". Sessé & Mocino (1893) report "Vulgo adpellatur Mate; nomen plurimis plantis fructu subrotundo, inter Indigenas communne".

Palacios (1968) describes the pollen grains as "tricolpados, tectados, prolatos, de 27 (33) 39 μ x 23 (25) 30 μ . Vista polar circular, con un diámetro de 22 (26) 31 μ . Exina: 2.5 μ de grosor; elementos de la columela simples, superficie psilada. Surcos: de 21 (23) 29 μ de longitud x 4 μ de fisura, con terminaciones agudas".

Russell (1963) lists *Vitex mollis* as one of the hosts for the whitefly, *Trialeurodes abutiloneus* (Haldem.) Quaint. & Bak.

Loesener (1912) cites Seler 3435 from Colima, Mexico, describing the flower color as "lilac", and found it in anthesis in April. He comments that "Das Exemplar stimmt gut mit Willdenow n. 11707 überein. Ob die beiden andern Nummern 11705 u. 11706, die ebenfalls als Originale dieser Art gelten können und auch in Schauer in DC. Prodri.....dabei angeführt werden, wirklich dazu gehören oder besser als Vertreter einer besonderen Art oder Varietät zu betrachten sind, muss ich dahingestellt sein lassen. In Form und Consistenz der Blätter scheinen sie mir etwas abzuweichen."

Material of *V. mollis* has been misidentified and distributed in some herbaria as *Citharexylum* sp. On the other hand, the J. Rzedowski 15267, distributed as *V. mollis*, actually is *V. pyramidata* B. L. Robinson, while L. M. Andrews 379 is *V. trifolia* var. *subtrisepta* (Kuntze) Mold.

Additional citations: MEXICO: Chihuahua: Knobloch 901 (Ws). Guerrero: Hernandez X. & Alexander 2018 [XA.7] (Ln--196414); Hinton 9970 (Tu--112079), 9971 (Se--120102), 10989 (Ld), 14121 (Tu--127636); Pennington & Sarukhán K. 9471 (N). Jalisco: Gregg 872 (E--2168598); Johnston, Chiang, & Wendt 12250 (Ld); S. D. Koch 7485 (W--2754846); Pérez & Hernández 852 (N); Torke, Dunn. & Ellis 255 (Ld, N). Mexico: J. Rzedowski 22037 (Au--256539). Michoacán: Anderson & Anderson 5845 (Mi, Sd--78821); Ventura A. 2466 (Mi, Sd--78186). Morelos: Palacios s.n. [18.III.1965] (Au--243575); Reiche 702 (Mu); W. D. Stevens 1378 (Ld, Ld); Troll 615 (Mu). Nayarit:

Littman & Pennington 9030 (N); Norris & Taranto 13975 (Mi); Palacios s.n. [18.III.1967] (Mi); Sheldon s.n. [March 22, 1893] (Mi). Oaxaca: R. M. King 1259 (Au--177531); MacDougal s.n. [Las Tejas, 20 February 1970] (N); I. L. Wiggins 13286 (Sd--49113). Puebla: S. S. White 5069 (Ld). Sinaloa: Breedlove 19314 (Mi). Sonora: Carter, Hastings, & Turner 71-60 (Sd--77689, Tu--178629); J. R. Hastings 71-200 (Sd--79764, Tu--180788); Hastings & Turner 65-189 (Sd--61691, Tu--159253), 69-49 (Tu--172026); Mason, Jones, & Shaw 2917 (N, Tu--172427), 2919 (Tu--172426); Moran 4024 (Ba); Pennington 295 (Au--254287); Whitehead M.175 (Tu--161491); Wiggins & Rollins 452 (Tu--132041). LOCALITY OF COLLECTION UNDETERMINED: Olida s.n. [Herb. Debeaux] (P).

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NOTES ON THE GENUS *SPHENODESME*

Harold N. Moldenke

This is the 48th genus to be treated by me in my series of notes in the present and other journals since 1931. In view of Munir's excellent taxonomic and nomenclatures revision of the genus in 1966 it would be presumptuous on my part to attempt the monographic study originally planned. It seems desirable, however, to place on record the notes, mainly bibliographic and derived from herbarium study, assembled by my wife and myself on this genus over the past fifty years. Herbarium acronyms employed herein-after are the same as those used by me in the previous 263 installments of this series since 1933 and are fully explained in my "Fifth Summary of the Verbenaceae....." (1971), pages 795 to 801, and later supplements thereto.

SPHENODESME Jack, Malay Misc., ser. 1, 1: 19. 1820.

Synonymy: *Sphenoderme* Jack ex Wall., Numer. List [47], no. 1735, in syn. 1829. *Sphenoderma* Jack apud Meisn., Pl. Vasc. Gen. 2: 200, in syn. 1840. *Viticastrum* Presl, Bot. Bemerk. 147--148. 1844. *Sphaenodesma* Jack apud Schau. in A. DC., Prodr. 11: 622. 1847. *Decadontia* W. Griff., Notul. Pl. Asiat. 4: 175--176. 1854. *Brachynema* W. Griff., Notul. Pl. Asiat. 4: 176--177. 1854 [not *Brachynema* Benth., 1859, nor F. Muell., 1862]. *Sphenodesma* W. Griff., Notul. Pl. Asiat. 4: 175, in textu. 1854; Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 7, 1059, in syn. 1966. *Sphaenodesma* Jacq. ex Schnitzl., Icon. Fam. Nat. Reg. Veg. 2: 137 Verbenac. [3]. 1856. *Sphaenodesme* Jack ex Bocq., Adansonia, ser. 1, 2: 90. 1862. *Sphenodesma* Jack apud Benth. in Benth. & Hook. f., Gen. Pl. 2 (2): 1136 & 1159. 1876. *Sphaenodesma* Schau. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 959 & 961, in syn. 1895. *Sphaerodesma* Schau. apud Dalla Torre & Harms, Gen. Siphonog., imp. 1, 434, in syn. 1904. *Sphenodesma* Jacq. apud Junell, Symb. Bot. Upsal. 1 (4): 138. 1934.